The Commercial Car Journal

VOLUME XXI PHILADELPHIA, MARCH 15, 1921 NUMBER 1

Unit and Parts Makers Discuss Parts Service With Truck Manufacturers

Parts Makers Insist Upon Maintaining Their Own Service Stations. Tentative Report Submitted by Parts Manufacturers to be Discussed in Detail by Directors of the Motor Truck Manufacturers' Association

As a result of a meeting between parts and unit makers and representatives of the Motor Truck Manufacturers' Association at the Hotel La Salle, Chicago, February 24, recommendations for a plan of action to coordinate the service policies of dealers and parts manufacturers was suggested. The plan takes the form of a report sent by Mr. Moie Cook, M. T. M. A. representative, to the truck association which contains a clear description of the meeting and the arguments advanced by all present. The report to the Motor Truck Manufacturers' Association is reproduced in part below:

The meeting was called to order by President Gramm of the M. T. M. A. and the various discussions were characterized by their frankness. After discussing the situation from both sides, it was finally suggested that the parts makers appoint a committee to meet with the Motor Truck Manufacturers' Association committee in an effort to devise a plan that would be agreeable with all concerned. The meeting adjourned for luncheon and re-convened following luncheon with the following representatives composing the parts makers committee:

George W. Yeoman, Continental Motors Corp.; L. N. Viles, The Buda Company; F. E. Place, The Buda Company; Fred Glover, Timken Detroit Axle Company; J. P. Hood, Timken Detroit Axle Company; Gould Allen, Brown-Lipe Gear Company; George Borg, Borg & Beck Company; William Mack, Borg & Beck Company; A. E. Dixon, Torbenson Axle Company, and Messrs. Gramm, Thomas and Coob representing the Truck Manufacturers.

After further discussing this subject, the plan was suggested as follows:

Parts makers to maintain their present depots and establish additional ones until practically every section of the country is covered.

The unit manufacturers to allow parts depots a discount of 45 per cent instead of 50 per cent as at present.

This difference in discount of 5 per cent to be set up as reserve, which would be 10 per cent on the amount of the parts maker's net sale.

This amount to be distributed to the truck manufacturer, based on the truck manufacturer getting 5 per cent of the list price, which would be 10 per cent of the manufacturer's net selling price, on all parts sold for use on truck of each manufacturer's make.

The report of sales to be made each month by the parts depots to the parts manufacturer, showing for what make of truck each part was sold during the month, and remittance to be made by the parts maker to the truck maker on the basis of these parts depot monthly reports.

Truck dealers to be given a discount of 25 per cent by parts depots, garages and fleet owners, a discount of 15 per cent, a definition or limitation of the term "fleet owner" to be determined by an agreement between parts makers and truck manufacturers.

No one other than authorized truck owner, garage operator and fleet owner are to be given any discount whatsoever. This provision protects our dealers and at the same time makes it an incentive to truck dealers to cultivate the good will of their users in order to retain that customer's parts business; naturally, if he retains every one of his customer's parts business, it follows he will retain their truck business.

I want to lay a little special stress on this point, as I think one of the weaknesses in our industry today is the dealer not properly keeping in touch with their truck customers.

If a dealer endeavors to take advantage of the situation by purchasing parts and selling them at a discount, he will forfeit the right to dealer's discount.

If the parts depot so conducts its business that it will give cause for complaint by reason of undermining the truck dealer, or in any other matter, that is objectionable to the dealer or truck manufacturers, then the parts manufacturer will have that condition corrected.

In handling defective parts, such parts will be returned as at present by the dealer to the truck manufacturer, then to the parts manufacturer.

If found defective the parts manufacturer will render a credit memo to the truck manufacturer for the price paid. This credit memo is in turn sent to the dealer, who cashes it at the parts depot, which originally made the sale, and the dealer makes refund to his user. No one is out anything except the parts depot who has handled the transaction for nothing and the dealer, who has had the little inconvenience of shipping the parts back.

In this way the truck manufacturer is kept conversant with the amount of replacements, and has full knowledge of any particular weakness in any particular unit, the truck dealer has the opportunity of building good will with his user by being one to make the direct refund. The present parts stock on hand with the

The parts manufacturer contends that the failure on the part of the truck manufacturer to establish responsible and reliable service stations, has forced him to establish his own stations. On the other hand the truck manufacturer feels that more parts makers service stations will prevent the dealer and manufacturer from realizing that profit from the sale of parts to which he is justly entitled.

There are many arguments on both sides. The plan suggested by the parts makers and which is reviewed herewith, will be given careful consideration by the Motor Truck Manufacturers' Association.

dealers and with the truck manufacturers could be gradually liquidated.

Any truck manufacturer and truck dealers could buy their parts from the manufacturer at the same discount as they are now enjoying and could still maintain parts stocks if they so desire, but there would be an advantage under the new system by eliminating duplicate stocks in the same cities, insomuch as the parts depot will carry the stock instead of each individual dealer having his own stock.

The dealer will still be able to get his present discount on parts, the truck manufacturer will get about as much net profit as he is now making, and a great many of the abuses in the trade will be removed.

It will take time to get this plan operating universally; there may be some rough spots that will have to be ironed out, either in the plan as a whole, or in some localities, but in the writer's opinion, it holds great possibilities. In time the volume will be sufficient that the parts maker can materially reduce his prices, which will be an advantage from the standpoint of low costs per ton mile to the user, and this will be an advantage that will be of benefit to all we truck manufacturers.

The argument is advanced that this plan will be better for the legitimate dealer, as he can be relieved of any consideration of considerable investment in parts stocks, which money can be put in sales promotion or in adequate servicing facilities, including necessary equipment, so that he can render quick, efficient, satisfactory service to his users, and that is the big thing after all.

It is not the intention to have all parts sold from one depot in each city, but it is the intention that there shall be two depots or more, that each parts maker shall contract for the handling of his particular part, and the same parts will not be handled at all parts stations. It is quite possible that a depot at one point may handle Continental, Timken, Borg & Beck, Spicer, etc., and at the next town Continental may be handled at the station that handles Torbensen parts, and Timken may be handled at the station handling Buda parts, etc.

There is one more thought that has to do with the dealer and parts depot operator costs.

The parts depot operator will depend upon the dealer for the bulk of his business—in other words, for his profits. He cannot afford to jeopardize his own business by not co-operating to the fullest extent with the truck dealer.

Up to the present time no official action on this report has been taken by the M. T. M. A. A meeting of the directors of the association has been called by Mr. Thomas, general manager, at which time all points will be considered in detail.

THIS DISTRIBUTOR IS SELLING TRUCKS

He's Not Only Selling Trucks But Passenger Cars as Well. And He is Doing a Nice Business in Rebuilt Trucks. When He Takes in a Truck He Knows What It is Worth to Him as a Rebuilt Job, and What's More He is Sticking to One Breed

WHEN you come right down to an analysis of what's the matter with some dealers — why they are not making money — the answer invariably shows a total disregard for the profits that they make on a sale, as a result of a trade-in. It's an old story, but it appears that a great many dealers still have to learn this lesson, no amount of preaching seems to do any good.

The desire on the part of the salesman to get an order, the attitude on the part of the dealer in his endeavor to beat his competitor regardless of consequences, and the lack of common sense on the part of both, is responsible for many a dealer's downfall.

Does the talking machine dealer, the piano dealer, or the furniture dealer make an allowance for a used product that practically would leave him without a good margin of profit? It is a well known fact that a piece of furniture, no matter what its price, depreciates anywhere from 20 to 50 per cent in value the very next day after it is delivered to the householder. Would the furniture dealer take in that furniture at the end of a few years and allow even as much as one-quarter of the original cost of the furniture? Not much.

A few years ago the piano men got together, and destroyed a great number of square pianos. They simply dumped them on a vacant lot and built a huge bonfire. They knew what they were doing. Those pianos were not taken in at ridiculous prices. They could afford to burn them.

Garage and Repair Shop of the Harrisburg Automobile Company

The garage adjoins the salesroom and is modern in every respect. The entire establishment, including offices, stockroom, shop and garage is equipped with an automatic sprinkling system, which greatly reduces the insurance rate

Two Views of the Stockroom

About $75,000 worth of spare parts are carried in stock by the Harrisburg Automobile Co. A perpetual inventory system is used to keep the stock from running low at any time. At the end of every working day the stockroom is cleaned up

But, what does the motor truck dealer do?

He takes in a truck that is ready for the junk pile and allows a figure which he knows he cannot get when he tries to sell it. He figures that perhaps his shop can repair the truck and put it in shape for say $50. The actual cost of doing the job sometimes, yes, most times, runs about four times that figure. Furthermore, the truck may stand around the salesroom for months. IS IT ANY WONDER THAT SOME DEALERS ARE LOSING MONEY!

McFarland is Sold on the Future of the Industry

Fortunately there are some dealers who are doing business according to business methods, and, the Harrisburg Automobile Company, of Harrisburg, Pa., is a noteworthy example. Geo. G. McFarland, who is the president and general manager of this concern, is not only fully alive to the possibilities of the motor truck industry, but is completely sold on the products which he represents—Reo trucks and passenger cars as well as Firestone tires. This organization controls the distribution of these products over central Pennsylvania, employing in its territory thirty-four sub-dealers. This company handles the retail sales in Harrisburg. During the period from August 1 to January 31, 1921, they sold 154 trucks. About two months ago McFarland caused quite a stir at the Reo factory by ordering a trainload of Reo passenger cars and trucks.

When asked what was responsible for the success and the optimistic spirit which prevailed through his establishment, Mr. McFarland said:

"Well, to tell the truth, it's hard to say what is responsible for our success, unless it is that we anticipate things, and meet them one way or the other before they really amount to anything. For instance, when the credit situation showed signs of becoming somewhat alarming some time ago, we did not wait until everybody was up against it, but we set our house in order immediately. The result is that we have nothing to worry about now.

"Another important thing is that everyone in this establishment is fully aware of the changed conditions. They are ready to fill in on jobs where more help is needed, and are working on their own responsibility. I don't have to tell them what to do—they just go ahead and do it. Oh, yes! our sales force is somewhat smaller than it used to be, but our men are working."

This company holds regular get-together meetings and employs modern methods throughout its establishment. The entire personnel shares in a yearly bonus, while a special bonus is given out every sixty days.

When talking about the labor situation, Mr. McFarland stated emphatically, "We haven't any labor troubles. Our employes are well satisfied, they get a bonus, and are made to feel that they are part of a family. Of course, some black sheep develop occasionally, but we simply get rid of them. If a man is sixty per cent efficient, it pays to keep him and educate him, and help him along. If he is forty per cent efficient—it pays to fire him. That's my idea in a nutshell. When an employe makes a mistake we talk it over with him in man-to-man fashion—confidentially. He isn't bawled out before the rest of the shop or the office, as the case may be. We have the confidence of our employes and they are doing their darndest to make every minute count."

How McFarland Views the Trade-in

"It is a rule around this place not to trade in any truck except our own. Once in a great while this rule is broken, but only when we are working on a fleet owner. We have proven to our own satisfaction that trading in other makes does not pay.

"What do we do with the trucks tha' we take in? We rebuild them. In the first place, we do not allow some outlandish high figure for them. We're not trying to commit suicide. When a salesman figures on a truck to be traded in, our shop foreman goes over the machine carefully. He placed a figure on it and that settles it. There's no dickering.

"That machine is placed in the shop and in fair shape it is rebuilt. If the machine is in such shape that it does not pay to rebuilt it, it is torn apart and the parts that are worth while are salvaged or rebuilt if necessary.

These salvaged parts are sold to an owner who wants his truck overhauled at 50 per cent off list.

Mr. McFarland stated that he sells many used trucks in a year, and that the reputation he has gained in furnishing rebuilt trucks is responsible for customers coming from outside the city to purchase these machines. When asked whether it wouldn't be more profitable to sell these customers new machines, he remarked: "Whether it's a brand new truck or a rebuilt machine, every truck placed on the road does its share to increase the country's transportation facilities and the owner of a good used truck may later on be the prospect for a new machine. In other words he is selling transportation.

"We carry about $75,000 worth of stock at all times, new stock, and our stock room is always kept in A-1 shape." The writer had the pleasure of a personally conducted tour of inspection through the entire establishment, and was agreeably surprised at the neatness and cleanliness shown in every department.

Sub-Dealers Are Sold on Farm Market

Mr. McFarland believes in encouraging the sub-dealer as much as possible. He is in constant touch with these dealers by mail and periodically they are called into headquarters for the purpose of talking things over and planning for the future. The sub-dealers are continuously impressed with the fact that sixty per cent of the trucks and pasenger cars are sold to the farmer, and that the field offers one of the best for the ambitious dealer.

Furthermore, the sub-dealers are continually posted as to changing conditions in the industry, factory policies, etc., which might affect the dealers' future. Whenever a change is being announced by the factory, the dealers are advised promptly so as not to catch them unawares. In other words, this organization realizes that the sub-dealer is the one who deserves the utmost consideration, and that every thing should be done to help the dealer.

Are Conditions as Bad as They Are Represented?

Is the Dealer Responsible for the Falling Off in Sales or is It the Result of General Business Conditions? Some Dealers Are Very Optimistic. There's a Reason

THESE days it takes a mighty strong nerved individual who can travel around among the dealers and listen to the complaints some of them are making and the pessimistic viewpoints they hold, without weakening under the strain. All one has to do to get an earful, to use the vernacular, is to travel around among the dealers and ask them how things are going. The answers are both interesting and picturesque. They furnish plenty of food for thought. All the misdeeds that business is heir to are usually given an airing and a renewed grip seems to have been taken on the hammer. In other words, the knocking birds are still with us.

Not being content with the hearsay and little rumors that continuously find peaceful repose on the editor's desk, to wit: that the motor truck business ain't what it used to be, the writer spent a little time sleuthing among the dealers and the retail trade to ascertain whether any of them had more orders than they could fill, or which perhaps the factory could not handle for the want of plant capacity. Even the most experienced detective could not unearth such a dealer. All of which means that the dealer will not experience any difficulty in supplying the goods—provided he gets the order and a fair-sized deposit.

T. C. Crawford, Who Handles the Armleder in Altoona
He hasn't a very nifty looking sales room but he's selling trucks. He is fully sold on the future of the industry and he isn't letting present conditions dampen his enthusiasm in the least

And this is just where this story begins—getting the order.

What are some of our dealers doing these days to create business, when plants are working short time, others closed down entirely and many concerns using the present situation as an excuse for not placing an order now? Are they sitting around the office waiting for the customer to come in and drop the order in their laps or are they letting the gray matter function. Here's the answer—they are doing both.

About a week ago the writer called on dealers in Pittsburgh, Harrisburg, Altoona, Lancaster and smaller towns in Pennsylvania, to find out just what these dealers are doing to keep their overhead from becoming unmanageable, whether they are doing any business or whether they have become acquainted with the sheriff.

Some of the dealers whom the writer visited are destined to failure, unless they do some snappy repair work in their sales departments. It is sad but true—that the sales end of many dealers establishments is working havoc to the dealers profits. The more one talks with some of the so-called motor truck salesmen the more convinced one becomes that a good house cleaning is needed in this respect.

Some Are Still Waiting for the Buyer to Do the Selling

It is, perhaps, unfair to blame the salesman for the conditions existing today. It isn't his fault entirely. A great deal rests with the head of the establishment. Take for instance one case which the writer came across—a representative dealer in Pittsburgh. His establishment was modern and impressive looking. There were not less than four healthy young salesmen draping themselves across some of the office desks. The head of the establishment was out, but his salesmen were in. When I questioned some of the men as to business conditions—the chorus answered—it was very quiet. Certainly it is quiet. With many of the steel mills in Pittsburgh shut down and others working on short time naturally things are not humming as during the war—and they may never reach that frenzied state again—let's hope so.

But, does the present condition offer any reason why the automotive salesman should sit around the office, instead of going out and making calls?

Absolutely, no! If sales are slow, why not take the opportunity to intelligently solicit the prospect for future business. One good salesman in the office at this time is sufficient. The others can do more good on the street. The only way to get the business now-a-days is to **go out and get it.**

When asked whether they ever thought of going out into the surrounding country to sell the farmer, they answered that they were not supposed to sell outside of the city. The reason the farmer was not solicited by these fellows is simply because it means a little hard work. **They would rather sit around the office waiting for a possible buyer** than go out and cultivate the friendship of the prospect for the benefit of future sales.

In this connection it might be stated that 75 per cent of the concerns interviewed, reported that they have cleaned house in their sales departments, by simply letting those men go who did not come up to the mark—in most cases the order takers.

From the foregoing it must not be concluded that the business in the territory mentioned is all shot to pieces. On the contrary, it's as good as can be expected. And it is being obtained by those concerns **that are on the job.**

Take for instance one of a number of the progressive concerns in Pittsburgh, the Garford distributor, Mueller Brothers. Here's a concern that has not laid off any salesmen on account of the present depression. In fact it has instituted a bonus system which makes it worth while for the salesman to put on extra speed. The salesman receives a bonus for every customer that he brings into the office. And the plan has worked out to perfect satisfaction. The plan has merit in that it gives the heads of the firm an opportunity to sell the customer on the service facilities and the permanency of the establishment, something which the salesman may not be able to do as well in the prospect's office. This company is very well satis-

fied with the business it is doing at present, and is looking forward to a steady increase in sales.

Hard Work and Not a Handsome Building Sells Trucks

That it does not take a plate glass front establishment to sell motor trucks is proven in the case of the Armleder dealer in Altoona. This agency is in hands of T. C. Crawford. Here's a man who took on the Armleder agency a little over a year ago. In thirteen months he sold twenty trucks, which is a mighty good showing especially when some dealers with a large organization have not sold a truck in five months. Furthermore, he turned down eight orders during that time, because he did not care to sell trucks to irresponsible parties, whom he knew could not meet the payments.

Although at present located in a building which is not very pretentious looking, he is at present laying plans for a larger place where not only a more suitable sales room will be provided, but where also a real honest to goodness service will be rendered. Although Crawford hasn't the place of business that he would like to have, and although he hasn't the sales force he expects to have some day—he is fully sold on his line and the company he represents. And, he's full of **enthusiasm,** something which many dealers lack.

The point which the writer wishes to emphasize by the foregoing example of what a small dealer is doing is that the size of the building or the location of the salesroom have nothing to do with the ultimate success of the dealer. Selling for cash, hard work, adequate service and a small overhead are far more important. And these are the things which Crawford feels are important and which must be carefully considered by the young dealer.

Dealers in Harrisburg are looking for business to open up soon as a result of the recent awards of highway contracts. The Harrisburg Show, March 5th-14th, is expected to help considerably in stimulating buying. A prominent dealer stated that he sold more truck tires during the first twelve days of February, 1921, than he did during the corresponding period of last year. He further stated that he has plenty of advance business in sight, but that many truck owners will not put on new tires until the road work is actually under way. But, he is very optimistic and confident that business will soon be decidedly better.

That a repair shop conducted along modern up-to-date methods is a paying proposition is exemplified in the case of the Harrisburg Welding & Brazing Company. This concern handles the Armleder truck and incidentally runs a repair shop which is worthy of the name. This company reports the truck business to be exceptionally good at the present time. Three and one-half years ago, the company started in the repair business with one lathe and $1000, while recently the company was incorporated for $150,000. The shop contains a complete array of modern machinery so that practically any kind of repair work can be done. A cylinder regrinder is kept busy continuously with regrinding jobs which are sent in from all parts of the state. A nice profit is being realized from this work alone.

A Good Follow-up Letter Campaign

In connection with its truck sales work, this firm has instituted a follow-up and mail solicitation campaign, which has proved very successful. Instead of sending out the usual type of letters and printed matter, each form letter is accompanied with a photograph illustrating one particular part of the truck. In this way the various units of the truck are presented to the prospect in logical sequence and the last form letter includes views of the complete machine. After the last letter is sent out the salesman makes his calls.

These are just a few examples of concerns that are not worrying about the future of the motor truck industry. But a great many dealers visited seem to feel that the fates are against them. A careful analysis of the methods employed by such dealers show that they haven't done anything to counteract the new conditions.

Kick Up a Little "Pep" and Boost the Truck Business

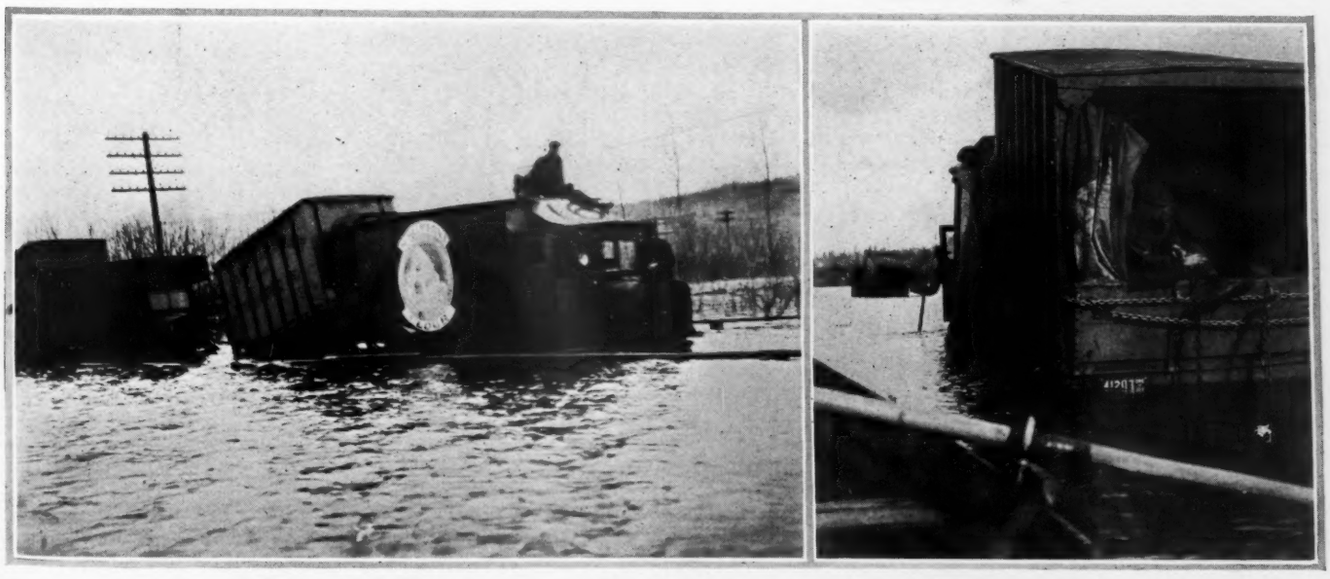
Some have not done anything out of the ordinary to stimulate truck sales. Many dealers who are handling passenger cars are inclined to let the truck business take care of itself, believing that as business improves the truck business will come back to them without any special effort on their part.

Most assuredly the truck business is coming back; it's coming black slowly, but it won't come back to the dealer who thinks he can let the other fellow worry with the motor trucks. The other fellow will be the one who will cash in on the sales when the market opens up.

The dealer who works hard now and makes it a point to solicit his prospects intelligently will find it much easier to close these prospects who are not willing to add to their equipment now, but who will be in the market for new equipment a few months from now.

This may seem like a waste of effort to some. Some may argue that lots of time may be spent on a prospect now, and when the time for buying comes he might switch over to some other make and all the work will have been in vain.

It will not be wasted effort if the prospect is solicited intelligently, and his future problems are **thoroughly discussed.** The dealer must create a market for his product, he must sell the SERVICE which he renders, and last but not least, he must be able to sell the prospect on the high character of his organization and the permanency of his establishment.



Trucks Crossing a Section of Highway Submerged Under Five Feet of Water

This remarkable truck feat was recently performed by Oregon drivers who conceived the ingenious idea of driving one truck up on the rear end of another, thereby keeping the engine of the second truck above the water level, and plowing through the water in this manner to the other side. This stunt enabled the drivers to sustain their reputation of delivering their cargo to the point of destination on time, regardless of any adverse conditions encountered on the way. There were four trucks, all of which were 3½-ton Fageols. It is estimated that the one truck, besides carrying a 3-ton load pushed ahead 10 tons and drew about 23 tons.

Just What Does the Modern Highway Mean to the Country?

How Does the Truck Figure in the Economic Scheme of Today? Can We Dispense With Truckportation, and Neglect the Roads That Make It Possible? If Not, Why is It Imperative That the Highway Program Should be Carried Through Uninterrupted and With Dispatch?

By LEE LAMAR ROBINSON

MOST everyone must now agree that the world, as a whole, is fast becoming motorized, and this fact should suggest the place of the truck in the economic scheme. A suggestion of more and better highways always strikes a popular chord but, all too often, looking the facts squarely in the face, a further suggestion of the extension of the area for motor truck activities brings a protest from many of the self-professed friends of the good roads movement.

There should be, and there is, a reason for this latter misconception of the place of the truck in the transportation program. It is to be found in the woeful lack of interest in the need for the building of roads of such character as will permit the passage backward and forward of this deputy locomotive of the highway in its transport of those things necessary to the comfort, the health, the pleasure of the public, individually and collectively, and the furtherance of the national defense and security.

With a transportation situation existing in the United States which can be improved but slowly at best, the utilization of auxiliary agencies to the rail lines is recognized as a necessity, and it is here that the motor truck comes first. The chances are that those today, who are charging the deterioration of highways to the truck (not realizing the condition in which the roads may have been left by preceding frosts and thaws, or the possible inferior workmanship on the part of the builders, or by maintenance crews), would, if truck traffic the country over were to be suspended for a single day, be the first to voice their protest against the economic results of this action.

However, the hue and cry in some sections against the truck may be translated into unjustified legislative action should the public not first pause and learn the facts.

No one would have the temerity to suggest that because a highway bridge was not properly built or had been permitted to deteriorate, that that highway be abandoned for traffic. Rather, the building of a new bridge or the adequate repair of the old one, that necessary traffic might pass over it, would be the outcome. It should be the same within proper bounds, as to a highway over which motor trucks might not pass without damage to the surface.

It being apparent therefore that a condition, and not a theory, exists, one that may and should be cured, it is well to analyze the situation somewhat in connection with a discussion which might throw light on the subject and tend to pave the way towards the desired result.

For example, interurban motor truck hauling is being developed to a point where multiplying thousands in towns and cities, and in between these centers, depend daily upon such transport for the needs of the home and the business. The town and city merchants are extending their deliveries to points miles beyond the area in which delivery was made in the olden days, and the providing of durable, passable roads, is vital to the continuance of these economic activities.

The views of those who might, with a degree of justification, be inclined to oppose an extension of the area in which the truck operates, the railroad executives, should be interesting.

J. E. Gorman, president, the Chicago, Rock Island and Pacific Railway Co., expressing his conviction that there is no question of the value of motor trucks in serving rural communities, if good roads are provided, said:

"Good roads are necessary for the development of motor truck transportation, and the large sum now being applied to this particular purpose in almost all parts of the United States, if extended at proper locations, will enable the motor truck to serve well many localities not now adequately served by railroads."

Again, pointing to the great need for highway transportation by motor truck in the southwest, B. F. Bush, president of the Missouri Pacific Railroad Co., points out that in States of Arkansas, Louisiana and Texas, particularly, auto truck transportation will increase rapidly when the very considerable appropriations made by the legislatures of these states for highway construction work have been made use of.

Of still greater significance, possibly, and coming from a source which cannot by any stretch of the imagination be fairly considered as prejudiced, are recommendations made by the War Department to the Highway Committee of Congress following a trip by seventy-three trucks from Washington to the Pacific Coast, the first transcontinental tour of this character to be made, in which it is stated that:

"The radius of action and resulting utility value of the motor vehicle **is limited only by the condition of the roads,** and that the provision of adequate roads will have a far-reaching effect on the economic development of the country at large; that, the types of motor vehicles, especially those used by the Army, should be co-ordinated with the road condition."

The report also suggests that "Until such time as all sections of the country are connected by improved highways that are **passable to heavy motor vehicle traf-**

"MY CREED"

I believe in the stuff I am handing out,
In the Firm I am working for,
In my ability to get results,
That Honest stuff can be passed out
To Honest Men by Honest Methods.

I believe in working, not weeping;
In Boosting, Not Knocking;
And in the Pleasure of my Job.
That a Man gets what he goes after,
One Deed done today is worth two done tomorrow,
That No Man is Down and Out
Until he has lost faith in himself.

I believe in Today and the work I am doing,
In Tomorrow and the work I hope to Do
In the Sure reward which the future holds.
In Courtesy, Kindness, Generosity and Friendship
And in Honest Competition.
I believe there is something doing,
Somewhere, for every man ready to do it.
I believe I am Ready, When?

RIGHT NOW!

FORREST J. ALVIN, General Manager,
The United States Motor Truck Company.

fic at all seasons of the year, the size, weight of vehicles should be limited to types of light and medium capacities."

Still again, commenting upon the fact that existing roads and bridges, especially in the sparsely settled sections of the middle and far western states, are absolutely incapable of meeting present day traffic requirements, the report says:

"Until modern types of roads and bridges are constructed which will permit the rapid movement of heavy motor cargo vehicles during any season of the year and in all conditions of weather, economical transcontinental highway traffic will continue to be but a vain hope."

A survey made by the Office of Farm Management and Farm Economics of the Department of Agriculture of 753 farms in the eastern section of the country, the owners of which also own and use motor trucks in agricultural work, shows that in the opinion of these men the principal disadvantage of a motor truck is "poor roads." The utility of the truck however from the standpoint of the farmer owners, aside from its use on the farm, made possible by the use of highways, is suggested in facts revealed by the investigation in question, to the effect these farmers have return loads for their trucks about one-fourth of the time on their way home from market, and about one-fourth of these do some custom hauling with their trucks, the average amount received per year by these being $174.

Further, that on the average there are about eight weeks during the year when "the roads are in such condition on account of mud, snow, etc., that these trucks cannot be used." The close relation between good roads and the motor truck, from the farmer's standpoint, here is emphasized.

As farmers, despite the fact the motor truck has invaded from four to five hundred different trades, are the biggest users of trucks, with something like 80,000 or more to their credit, the need of the rural sections alone would seem to make necessary highways over which trucks may be operated economically. The mere fact that the modern truck may successfully negotiate almost any kind of a road should not consistently be argued in favor of letting roads as they are, alone, as economy is the end to be sought when a truck is purchased, whether for rural or urban use.

Getting back to the question, "What, therefore, should be done in the premises?" the manufacturer, the seller, and the user of the motor truck, as well as the real friend of the highway movement, should seek through education to disarm those who might seem to favor the shunting of the truck off the highway. They should, also, ascertain the real facts as they apply to conditions and localities, put them prominently before the public, and to give aid in the remedying of those local situations which might fairly afford reason for complaint against a too excessive use of the truck.

The transportation situation throughout the country, which has had the effect of holding up highway building programs, due to the inability on the part of contractors to get materials, the shortage of labor, and the exorbitant prices of material, while a great disappointment to those interested in highway development, may yet prove a blessing in disguise, in that it will have afforded an opportunity for arousing a sentiment throughout the country in favor of the building of roads of such types as will take care of truck traffic.

This means of course that special consideration, resulting possibly in the building of roads adequate to all reasonable demands, will have to be given this subject in those sections where truck transportation is heaviest, and the question of limiting the size of trucks to be operated over the lighter roads may then be worked out.

Serious Road Building Problems Considered at Chicago Congress

THE commendable efforts toward national road betterment were recently concentrated in a big convention held at the Coliseum, Chicago, February 8 to 12, known as the eleventh American Good Roads Congress and twelfth National Good Roads Show under the auspices of the American Road Builders' Association.

With an attendance of 10,000 or more visitors and exhibits of road building machinery, methods and materials, numbering 144, renewed interest in better highways was aroused in a way that augurs well for the immediate future of the road building industry and that ushers in what promises to be the greatest era in highway construction ever known.

The sessions were marked by a growing tendency to solidify sentiment and to agree upon certain fixed policies in the future program which will do much to hasten highway improvement. Among the resolutions adopted were:

Urging the Interstate Commerce Commission and the railroads immediately to grant a reduction of 25 per cent in freight rates on road building materials for use in constructing public highways.

Urging material producers and contractors to reduce the cost of materials and operation to a point that will permit an immediate start in the development of the greatest road-building era in American history.

Protesting against the killing of more than 5,000 and the injury of more than 14,000 persons on the highways of the country during the past four years, condemning reckless speeding and demanding better policing of the highways, better construction and inspection of bridges and better means of preventing grade-crossing accidents.

Urging that state highway departments be divorced from politics and that the salaries of highway engineers be increased so as to make possible the employment by highway departments of the most competent engineers and their retention in the public service.

Recommending that the United States become a member without delay of the International Road Congress and instructing the executive committee of the American Road Builders' Association to secure the passage by Congress at Washington of such legislation as may be necessary to that end.

Urging Congress to pass without delay the bill, now pending in the House of Representatives after having passed the Senate, which authorizes the immediate allottment by the government of one hundred million dollars as Federal aid to road projects for the year ending June 30, 1922.

Recommending the application of Federal aid to the construction of interstate highways as a step toward the ultimate formation of a great national highways system.

President Warren G. Harding sent a letter that was read to the delegates at the mass meeting at Medinah Temple, on February 9, in which he said: "Our civilization depends on communication and transportation, and as it becomes increasingly complex, that dependence increases. Every great community is held together by its means of transportation and so vast a country as ours is the more in need of ample facilities. Our country roads we have not other transportation,—railroads, waterways, our new merchant marine,—cannot be of the fullest utility unless good country roads supplement them. The country road bears the same relation to these that the capillary circulation does to the system of veins and arteries in the human organism.

"In recent years there has been nation-wide realization of the road problem. We need to devise and adopt means, financial and engineering, to solve it. I believe we shall progress greatly in the years of peace and prosperity which, I am confident, lie ahead of us, toward this solution, and such organizations as your own will contribute much to that end."

In his address on "Our National Road Problems" at the opening session, Thomas H. MacDonald, chief of the United States Bureau of Public Roads, urged that the country get under way with its road building program without delay. "Pres-

ent conditions," he said, "are such that a large progrem of highway improvement should go forward now. Funds are available and the state and Federal highway departments are ready to award highway contracts for large mileages. It is estimated that from all sources approximately $622,000,000 is available for highway work. Admittedly there are many and grave problems in our developing highway program that must be met. Still, with more than 3,500,000 unemployed and with the railroads eagerly offering transportation for the necessary materials, there is every justification for vigorous action to inaugurate a large public works program with confidence that the problems will be adequately solved as, and when, they arise, and should not be made an excuse for delay now.

"It is difficult to point out with any degree of certainty," said Prof. Tilden, during his address on "The Relation of the Highway and Motor Transport Movement to Education, "the educational need in connection with such a rapidly changing and quickly developing activity as that of the construction and use of highways. One point, however, is the need of trained engineers to undertake highway construction as a public service. The idea of public service,—the idea of the importance of the highway program as a part of public service, cannot be overstressed. On the basis of the 10,000 engineers or more needed, which is admittedly conservative, and on the further basis of an annual turnover in this force of ten per cent, we have at the very least a thousand civil engineering graduates who could be absorbed annually by this highway work. The enrollment is increasing in our technical schools in a gratifying way, but the boys who are entering now will not be available for three or four years.

Discussing "Highway and Finance," at the session on Friday afternoon, H. C. Sylvester, vice-president of the National City Co., New York, urged that until permanence in highway construction has been attained, the financing of the work should be effected with due recognition of the possibility that reconstruction may soon be necessary. "To finance highway construction successfully," said he, "it is my opinion that highway bonds should be issued by a state, by a country, or by a district or township, and should be paid from an ad valorem tax, which is authorized to be levied in an amount sufficient to pay the bonds. No limit should be placed upon the rate of tax, which may be levied. If such a limit be imposed the desirability of the security will be affected, the rate of interest will be increased and the taxpayers will be needlessly burdened."

Several cities sent communications to Secretary E. L. Powers, inviting the American Road Builders' Association to hold the congress and show within their precincts next year. Among them were: Chicago, Ill.; Cleveland, Cincinnati and Columbus, Ohio; New York City; Minneapolis, Minn.; Atlantic City, N. J.; Detroit, Mich.; Philadelphia, Pa. and Montreal, Canada. Sentiment among delegates and exhibitors seemed to favor returning to Chicago. The matter of making a selection was left to the executive committee and the directors of the association.

What the Truck and Highway Means to the Federal Government

WASHINGTON, March 15—Modern highways and modern motor driven vehicles have become an inseparable part of the machinery of the federal government if the story told by annual reports of executive and other heads and appropriation bills are to be taken as a criterion. The fact is, so essential to the conduct of the business of the government has highway transportation become, and this, of course, means necessarily the highway itself, that even at a time when economy is the watchword of Congress items calling for the maintenance of motor machines are passed without a question by the most persistent of treasury watch dogs.

The significance of this fact is readily apparent. It means that modern business, whether it be governmental or otherwise, cannot move expeditiously and economically without the assistance of the two utility tools the highway and that which moves over it.

Congress has proved its interest in good roads by voting multiplying millions towards the support of the federal aid plan. There may be differences as to the part which Congress should play in the future with respect to the scientific manner of handling federal money for roads, but the main fact, that roads themselves, the fundamental unit, is recognized as a need of commerce, business, generally, the school and civilization.

The road programs in the national parks and in other federal controlled areas are going forward each year, sometimes not as rapidly as their friends outside of Congress might wish, but going forward, nevertheless. The army, the navy, the government departments having to do with civil rather than military affairs, are all doing it insofar as the adoption of motor-driven machines, both passenger cars and trucks, are concerned, and they will continue to use them more than ever in the future. The total expended by Congress annually for maintenance of such machines and purchases in itself represents a large sum.

Community Service to be Established in Washington

WASHINGTON, March 15—A co-operative store, the success of which is to be made possible through the wide use of motor trucks, is being planned by the 90,000 trade unionists living in the District of Columbia and capital stock to the amount of at least $150,000 is to be subscribed in the effort to lower the cost of living to those participating in the venture. The economies thought to be possible through the use of trucks in touring rural sections around Washington and bringing into the co-operative store products of the farm are being pointed to by those active in the movement.

A committee of twelve members, selected from the Central Labor Union, will handle arrangements for the new store. Traveling agents will act as a supply corps in locating food products to be brought in by the trucks, which latter will be routed in harmony with suggestions from these agents. The trucks and equipment will represent a considerable share of the expenditures occasioned by the starting of the project.

It happens that surrounding Washington, in Virginia and in Maryland, particularly southern Maryland, are large and productive farm areas which have practically no railroad facilities. At present the producers depend principally upon slow-moving boats on the Potomac and smaller rivers entering into it. To some extent rail facilities are used and to a slight extent the parcel post.

Council Pushes Store Door Delivery Movement

WASHINGTON, D. C.—Railway traffic executives in eastern territory now have before their committee a proposition from the transportation committee of the Federal Highway Council to make a larger use of the highway and motor truck in the store-door collection and delivery of freight.

In determining the class of traffic which would ecomonically come under the new plan of delivery, J. C. Lincoln, traffic manager of the Merchants' Association, of New York, has had embodied in the plan of procedure the principle that store-door delivery should apply to all station or platform delivery. This would exclude carload lots delivered to sidings, but would include carload lots handled over freight platforms at terminals. In most smaller cities carload lots are seldom handled over platforms, while at New York City a large portion of the freight is so handled whether it is carload or less.

A motion has also been adopted to the effect that "the committee deems it most advantageous to have store-door delivery a carrier service, but at additional rates not included in the through rates." It was brought out in the discussion that store-door delivery tariffs should be published separately.

Discussion at the last conference thoroughly established the fact that this proposed service should not be an additional burden upon the railroads.

Upon the suggestion of William J. Pitt, of Philadelphia, the committee has adopted a recommendation that "the carriers, to avoid congestion and delay, be urged to establish and operate, in all large cities, a store-door collection and delivery system to be performed by, or under the control of the carrier, the carrier to assume liability for the safe transfer by their representatives, a reasonable charge to be assessed for such sevice."

WAITER! A LITTLE SERVICE, PLEASE!

GOT to make the 7:14—been sitting here about fifteen minutes, and I'll miss that train if somebody doesn't show a little speed!

Sounds familiar, doesn't it?

Did you ever realize that the average truck owner is ***no different*** than the man who has to catch a train, but first wants to get a bite to eat?

Without ***quick service*** he would be out of luck—or out of eats.

SERVICE in the motor truck industry is just as important as it is in the restaurant business. A whole lot more so.

The motor truck dealer who does not render efficient service is losing many opportunities for future sales—repeat orders.

There are ways and means of rendering service without taking a loss.

Many service stations are showing a splendid profit—some are breaking even and some are losing money. ***You CAN MAKE*** your service station ***pay.***

There are perhaps a lot of things you are doing in connection with your service station which are not paying you or your customers. Why not cut them out?

But, you must know what to cut out—otherwise you will not remedy the situation. And there are some phases of your service that need revising.

MOTOR TRUCKS require prompt, efficient service. *Replacements* must be quickly available. Waiting weeks for parts will not be tolerated any longer in the motor truck industry. A motor truck laid up for the want of parts is the worst sort of an advertisement for the dealer.

As ***SERVICE*** is the watchword of the industry today, we have decided to give this subject more than usual attention in the JUNE issues of the Commercial Car Journal, the Automobile Trade Journal and the Chilton Tractor Journal. The necessity of giving the better kind of service will be comprehensively discussed.

The accompanying synopsis will give you an idea of what the JUNE issue of the CCJ will contain.

It will pay you to read this issue from cover to cover.

What Service Means to the Dealer

A general article dealing with the subject in a broad manner. How the dealer can make money selling service. The kind of advertising he should run in local newspapers, etc., to merchandise the service he renders.

The Potential Market for Replacement Business

This article will show the dealer and parts manufacturer the volume of business done in the more important parts used for replacement purposes.

What the Manufacturer Owes the Dealer

This article, written especially for the benefit of the truck manufacturer, will call attention to some of the business policies that must be revised so as to permit the dealer to give the customer the kind of service to which he is entitled. How adequate service breaks down sales resistance. Why prompt shipments must be made on parts.

Summarized Index of Service Articles

This index will include all the articles which have appeared in past issues of the Commercial Car Journal relating to service and such articles in the Automobile Trade Journal and Chilton Tractor Journal which would interest the truck dealer.

Equipping the Service Station

Three articles will be written on this subject, taking into consideration the small, medium and large service stations. This series will include the layout of the repair shop, machinery and tool equipment, systems, etc.

The Ideal Stockroom Layout

Best method of arranging stockroom; perpetual inventory system, etc.

Building Up a Repair Business

How the dealer can build up his repair business and parts business gradually. That intelligent service is not dependent upon a large initial outlay for machinery and tools.

The Service Wagon

What comprises a well-equipped service wagon, and why it is a real asset to the service station.

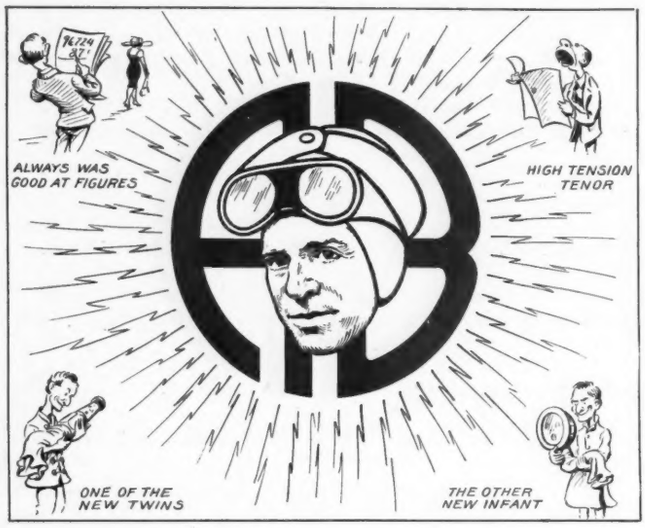
Accounting System

An entirely new form will be presented; original and simple.

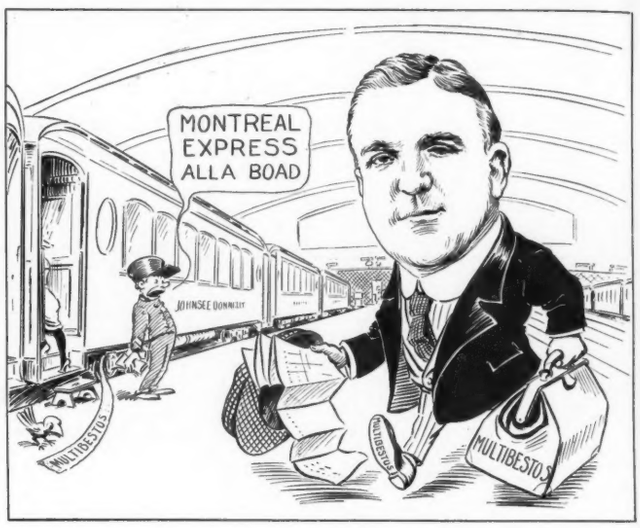
Summary of Service Work Done by Associations

Review of work done by local and national associations during the past year, with plans for the future.

FRIENDLY TIPS ABOUT SOME "BIG ONES"



Alfred H. Bartsch, American Bosch Magneto Corp., Springfield, Mass. Bartsch born in New York City, 1884. Following usual school and college education, entered Electrical Construction business. Then seven years printing business. Entered motor vehicle field as Adv. and G. Mgr. U. S. N. Motor Co. August, 1910, joined Bosch Co., soon advanced to Adv. Mgr., holding position until Alien Property custodian took over Bosch Co. Then executive large adv. agency. Following purchase of Bosch by American interests, Bartsch returned as G. Sales Mgr.



J. C. Donnelly was born in Walpole, Mass., 1882. After attending Walpole schools went with Sam'l Cabot Company of Boston. After a number of years joined the Bird & Son organization of East Walpole, then with Multibestos Company in 1917 in capacity of Sales Manager.

"LIVE WIRE A. H. BARTSCH"

A.....H. Bartsch, of Magneto fame,.....A
L ....ad whose work deserves acclai.....M
F ....or many years it's been his jo.....B
R ....ecruiting Mag. sales from the m.....Ob
E ....ach year his brand new selling antic.....S
D ....esigned to keep the sales curves franti.....C
H ....ave all the punch that goes with him, and....o-H
B ....oy! haven't they got the vi.....M
A ....semi-pro with music and song,.....A
R ....egular guy, he'll help you alon.....G
T ....o all of you surely his virtues are know.....N
S ....o well that his faults we can condon.....E
C ....ause none but live wires stop at his depo.....T
H ....igh tension Al, and the Bosch Magnet.....O

R. E. PATTERSON.

"OWED" TO J. C. DONNELLY

This introduces Donnelly
Of Multibestos fame,
His first initials are J. C.
(No doubt you've heard the name);
They stand for Jobbing Customer,
The kind that he can spy
Though full 2,000 miles away
They simply can't get by.

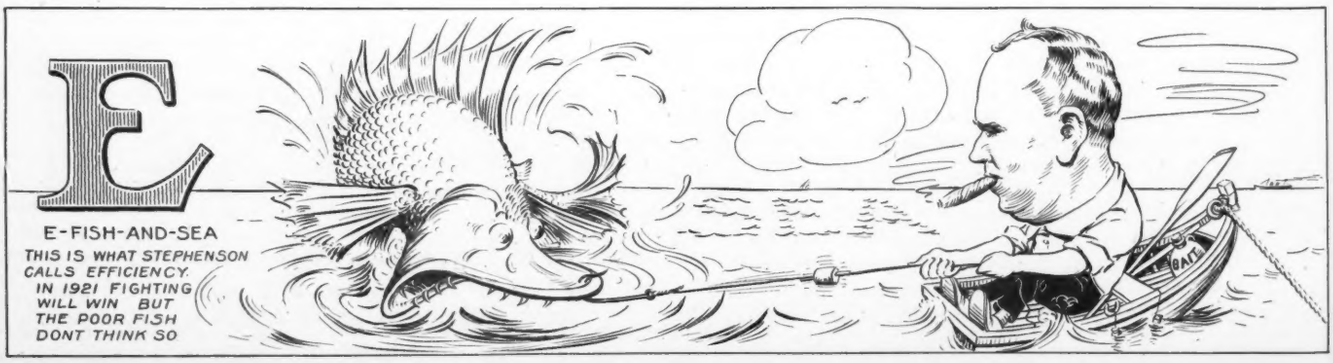
His home is on the sleeping car,
He's always on a trip,
A smile upon his countenance,
And in his hand a grip.
He's led a quiet, blameless life,
With indiscretions few;
Though mixing in town politics
Is dangerous work, it's true.

And if you'd make a hit with him,
Come in some day and call,
And then invite him for a week
To visit Montreal.
He'll promptly fall upon your neck,
And when he's calm again,
He'll study through the time table
To find the quickest train.

And if you've never talked with him
It's really worth your while
To try and get acquainted
With his Multibestos smile.
You're almost sure to meet him
At the automobile shows:
His genial, friendly handclasp
Makes friends where'er he goes.

E. C. MINER.

February 10, 1921.



J. W. Stephenson, born Buckeye, Indiana, 1879. First business connection with Gas City Tin Plate Company. For several years also in lumber business in Dolive, Ala. Then returned to manage Rutenber Motor Company. Later organized Delta Electric Company of which concern he is still President. Six years ago entered Indiana Truck Corporation of which he is now Vice-President and Treasurer.

EDITORIALS

Getting the Most Out of a Motor Truck

AS an individual unit of transportation the motor truck has no equal. There are many jobs which the motor truck is capable of performing besides ordinary hauling, provided the truck is suitably equipped. What we refer to is the application of the power take-off. The average truck manufacturer does not, perhaps, appreciate the advantages to be gained by the power take-off, which, undoubtedly, widens the range of work of any truck.

Such a device is usually applied in connection with the transmission. Although many manufacturers have realized the importance of such a device, the dealer has not played up this part of the truck to any extent in his sales literature. Practically all well-designed trucks have provisions on the transmission for utilizing the power of the motor separately, so that the addition of a power take-off is a simple matter. This device would come in very handy especially on the farm truck. Wood sawing can be done by using the truck to haul the saw to the wood lot where the power take-off comes into use. The power belt pulley can also be used for other kinds of farm machinery. The power take-off can also be used in connection with winches, and especially designed trucks for well drilling, post hole diggers and other purposes where power is required.

Is the Industry Playing Fair?

IF the legislation proposed by the law-makers of New York should become effective, many owners of heavy-duty trucks of five tons' capacity and over will seriously consider taking their heavy trucks off the roads—unless they are willing to pay the exorbitant fees which the present legislation is trying to put over. This is the plan of the legislators who, first of all, are trying to meet the recommendations of Governor Miller, and, on the other hand, are firmly convinced that the big trucks are tearing up the roads.

What could be more fallacious. Heavy trucks are not any more responsible for road damage than the lighter vehicles. The fault is with the road and nothing else. As long as we have to put up with some of our roads that were built with no consideration for the traffic which the evolution of transportation has forced upon them, no legislators are justified in ruling a certain class of truck off the road by prohibitive taxes.

But the point we want to bring out is this: There are many truck dealers in the state of New York who are not interested in fighting this tax because they are handling light-weight vehicles. Such dealers are viewing this proposed legislation with an indifferent air, feeling that the enforcement of such legislation would benefit them as a result of the increased sales of lighter machines. The point to be remembered is that if the proposed legislation becomes law, what is to prevent the legislators from placing prohibitive taxes on the lighter vehicles at a future time. The dealer handling a light-weight vehicle has just as much at stake as the dealer who handles heavy-capacity trucks. The whole trade must do its share in combating excessive taxes.

Ideal Time for Overhauling Trucks

AS a result of the open winter throughout most parts of the country, many motor trucks have been run continuously through the winter months; where formerly they have been placed in the shop during the period following the holiday season. There are thousands of trucks in operation today that have been neglected insofar as the winter overhaul is concerned. There are, of course, many shops which have realized the necessity of carrying on a mail campaign to solicit this class of work, and their efforts have been well repaid.

There is bound to be a tremendous jam in the repair shops this spring, for the simple reason that many passenger car owners have not placed their cars in the shops this winter, because of favorable weather conditions, and because some are waiting for a possible reduction in price. (We think they're going to have some wait.) Under these circumstances, in another month the shops will have more work than they can handle comfortably, and in many shops passenger cars will be given the preference. It will pay the dealer to circularize his truck owners to the necessity of sending their trucks into the shop now—before the spring rush begins. It will benefit the industry and the owner.

News of the Trade in Brief

(For Factory Items, Personals, New Incorporations, Etc., See Pages 90-91)

S. A. E. Spring Meet to be Held in Indiana

West Baden, Ind., will be the convenient grounds of the Society of Automotive Engineers' semi-annual summer meeting May 24 to 28, 1921. The society has agreed upon the beautiful West Baden Springs Hotel, a commodious and suitable convention hall in one of the prettiest sections of the middle west.

Beside the excellent facilities for business sessions afforded the recreation opportunities are large. A difficult golf course, tennis courts, a baseball diamond and swimming pool can be utilized for outdoor recreation. The mineral waters at West Baden are known throughout the country for their medicinal value and every type of bath and treatment is provided.

The program for the technical meetings has been outlined, but it is not definite enough at this time to make public. It can be stated, however, that indications point toward the presentation of papers that will be classed among the most noteworthy presented at meetings in the past. There will be sessions devoted to fuel, research, aeronautics, farm power, highways and transport, and engineering relation to sales. The latter subject is particularly pertinent at this time and should arouse unusual interest.

The members and their guests can arrange to attend the annual 500-mile race at Indianapolis on Decoration Day as part of their vacation. West Baden is 120 miles south of Indianapolis and it will be noted that the S. A. E. meeting closes on Saturday and Decoration Day falls on the Monday following.

The officers of the Society and the meetings committees are extremely enthusiastic over the selection of West Baden and look forward to the greatest summer meeting ever held by the S. A. E.

Service Managers to Meet at Buffalo

The three day sessions of the service managers convention of The National Automobile Chamber of Commerce will be held in Buffalo, N. Y., May 17 to 19. The increasing recognition of the importance of service in car sales will make the sessions of great value to the trade.

The matter of service station reforms and better co-operation between equipment service stations and dealer service station will be considered along with a number of timely and pertinent subjects of interest to service stations.

The preparations for the sessions are in the hands of H. R. Cobleigh, secretary of service for the N. A. C. C.

Federal Trade Commission Still Hard at It

WASHINGTON, March 15—An investigation of wide interest and great importance is now being made by the Federal Trade Commission in connection with complaints that manufacturers are guaranteeing commodities in the hands of wholesalers against decline in price. That there is a wide difference in opinion on the subject among those most interested from a trade standpoint is indicated in expressions from more than 300 manufacturing and selling concerns, including trade associations whose represented membership is large.

The trade commission states it is considering each case of complaint of this character brought to its attention upon the facts shown in the specific cases, applying the usual legal tests thereto, but this action invólving neither approval nor disapproval of the economic soundness of the arguments advanced before the commission as to this practice.

Application has been made to the Federal Trade Commission recently by four new associations for permission to organize under the Webb-Pomerene export law. Concerns applying for this privilege is increasing particularly in view of the efforts expected to be made to push foreign trade during the new year.

SHOWS

March 19 to 26, 1921—Detroit, Mich. Twentieth Annual Show. Morgan & Wright Bldg., Jefferson Ave. (150,000 sq. ft.) Passenger cars, trucks and accessories. Auspices of Detroit Automobile Dealers' Association.

March 21 to 26, 1921—Norfolk, Va. Second Annual Show. The Tabernacle (27,820 sq. ft.) Passenger cars, trucks, tractors and accessories. John W. Gates, Dir., Monticello Hotel Lobby.

March 21 to 26, 1921—Oneonta, N. Y. Annual Automobile Show, State Armory (120 x 90 ft.). Auspices of Company G. Trucks, Tractors, Passenger Cars and Accessories. J. Callahan, P. O. Box 1186, Pittsfield, Mass.

March 21 to 26, 1921—Cedar Rapids, Iowa. Eleventh Annual Show. Auditorium (20,000 sq. ft.) Passenger cars, trucks, tractors and accessories. E. L. Makibben, Mgr., 527 Second Ave.

March 21 to 26, 1921—Peoria, Ill. Eleventh Annual Show. Peoria Automobile and Accessories Association. Passenger Cars, Trucks and Accessories. National Warehouse, Robert H. Fitch, 629 Main St.

March 21 to 26, 1921—Wilkes-Barre, Pa. Eleventh Annual Commercial Car Show, Auspices of Automobile Dealers' Association of Wilkes-Barre. Trucks, Tractors and Accessories. R. H. Henderson, Chairman, 50 W. Market St.

March 22 to 26, 1921—Williamsport, Pa. Second Annual Show. Lycoming Motor Corp. Bldg. (67,500 sq. ft.) Passenger cars, trucks and accessories. Address W. C. McCormick, 601 West Third St.

March 23 to 26 1921—Ottumwa, Iowa. Second Annual Show. Auspices of Wapello County Motor Trades Bureau. Passenger Cars, Trucks, Tractors and Accessories. F. T. Lynch, Sec'y.

March 28 to April 2, 1921—Greenfield, Mass. Fourth Annual Show of the Franklin County Auto Dealers Assn. G. T. D. Bldg. (25,200 sq. ft.). Passenger Cars, Trucks and Accessories. George E. Graham, 23 Miles St.

March 28 to April 2, 1921—Columbia, S. C. Fifth Annual Show. Exposition Bldg., State Fair Grounds (65,000 sq. ft.) Passenger cars, trucks, tractors, accessories and displays by merchants and manufacturers. T. E. Thrower, Chairman, Main St.

Coming Events

March, 1921—Poughkeepsie, N. Y. Annual Show. State Armory. Auspices of Headquarters Co. and Co. G. Passenger cars, trucks and accessories. William H. Partlan, Mgr., Box 1453, Pittsfield, Mass.

April 4 to 9, 1921—Gloversville, N. Y. Gloversville-Johnstown Second Annual Automobile Show. Armory. Auspices of Co. G. Passenger cars, trucks and accessories. James J. Callahan, Box 1186, Pittsfield, Mass.

April 4 to 9, 1921—Seattle, Wash. Third Annual Show. Arena and Hippodrome (40,000 sq. ft.) Passenger cars, trucks and accessories. William J. Coyne, Sec., 1321 Seneca St., Seattle.

April 11 to 16 1921—Charlotte, N. C. Second Annual Carolina Automobile Show. Auspices of Charlotte Automotive Trade Assn. Standard Oil Co. of N. J. Motor Service Bldg. (30,000 sq. ft.). Passenger Cars, Trucks and Accessories. W. M. Jones, Sec'y, P O. Box No. 42.

April 20 to 23, 1921—Goldsboro, N. C. Second Annual Show. Wayne Warehouse (90 x 300 ft.). Passenger Cars, Trucks, Tractors and Accessories. W. C. Denmark, Sec'y, Care of Chamber of Commerce.

April 21 to 23, 1921—Lincoln, Ill. Annual Show, under Auspices of the Logan County Automobile Dealers' Ass'n. Tented Exhibit. Passenger Cars, Trucks, Tractors and Accessories.

September, 1921—Sacramento, Calif. Seventh Annual Show during State Fair. Automobile Tent (30,000 sq. ft.). Passenger Cars, Trucks, Tractors, Accessories and Agricultural Implements. State Agricultural Society, Sacramento.

September, 1921 (two weeks)—Topeka, Kan. Sixth Annual Show. Motor Hall at Fair Grounds (16,000 sq. ft.) Passenger cars, trucks and accessories. W. H. Imes, Chairman, 11th and Kansas Ave.

CONVENTIONS

Atlantic City, N. J., April 27 to 29, 1921—Ninth Annual Meeting of the Chamber of Commerce of the United States.

Buffalo, N. Y., May 17 to 19, 1921. Spring Meeting of the Service Managers of the National Automobile Chamber of Commerce, Iroquois Hotel. H. R. Cobleigh, Sec'y.

Cleveland, Ohio, May 4 to 7, 1921—Eighth Annual Convention of the National Foreign Trade Council. Hotel Hollenden. J. G. Hammond, Secy. of Committee, 207 Chamber of Commerce, Cleveland.

Detroit, Mich., June 13 to 16, 1921—Annual Convention of National Team & Motor Truck Owners, Inc., held aboard ship during a cruise on the Steamship Naronic. F. L. Henk, Sec'y, 92 Fort St., W. Detroit.

New York City, N. Y., April 25, 1921—Eastern Automotive Equipment Association. Meeting. R. A. Picard, Sec., care of A. J. Picard & Co., New York.

Peoria, Ill., March 21 to 22, 1921—Annual Convention of the Illinois Automotive Trade Assn. F. C. Zillman, Sec.

West Baden, Ind., May 24 to 28, 1921—Semi-Annual Meeting of Society of Automotive Engineers, at the West Baden Springs Hotel.

FOREIGN EVENTS

Algiers, Algeria, Africa, April, 1921—Annual Agricultural and Automobile Show.

Basle, Switzerland, May 28 to June 8, 1921—International Automobile Exhibition.

Bandoeng, Java, Dutch East Indies, September, 1921—Second Industrial Fair. Automobiles and Trucks. Netherlands-India Industrial Fair Association.

London, England, June 3 to 17, 1921—Fifth Rubber Exhibition. Royal Agricultural Hall.

Milan, Italy, April 12 to 17, 1921—International Sample Fair. Exhibit includes Automobiles and Aeroplanes.

Mexico City, Mex., April 2 to 9, 1921—First Annual Automobile Show. National Theater. Passenger Cars, Trucks, Tractors and Accessories. Gustavo Alana, Mgr., care of "El Automovile en Mexico."

Utrecht, Holland, September 6 to 16, 1921—International Industrial Fair. American Representaties: The New York Chamber of Commerce for the Netherlands and the Netherlands East and West Indies, Inc., 44 Beaver St., New York City.

Motor Vehicle Tax Increase Threatens New York

ALBANY, N. Y., Feb. 25.—Determined efforts are being made in the legislative body of this state to amend the existing motor vehicle law to prohibit trucks of more than 7½ tons capacity from operating on the roads outside of the cities.

The legislators originally intended to tax the heavy trucks off the highways. They were preparing a bill providing for a yearly tax of $500 for 5-ton trucks, $600 for 6-ton trucks, $700 for 7-ton trucks and so on.

Senator Lowman, chairman of the Internal Affairs Committee, said today that the heavier trucks seldom went outside of the cities which fact caused them to accomplish their purpose in another way. An amendment will be introduced soon to change the method of computing the number of pounds allowed for each inch of tire width in such a way that trucks of more than 7½-ton burden will be confined to the cities.

A bill has been introduced by Senator Lowman which places a series of taxes on motor vehicles, revenues from which is to be used for highhway maintenance. It increases the tax on passenger cars about 40 per cent, on omnibuses and trucks under 3 tons 50 per cent and on trucks over 3 tons, 100 per cent. This bill gives to the state an additional sum of $3,000,000 over the revenue of last year. Proportionate increases are to be made on the tax on trailers.

A valiant fight is now under way in the state, the motor truck end being led by the Motor Truck Association of America.

Farmers View Trucks at the Pacific Coast Show

Farmers from the San Joanquin and the Sacramento Valleys were much in evidence at the fifth annual Pacific Coast automobile show held in the Civic Auditorium, San Francisco, Cal., February 19 to the 26. Appreciating the importance of the truck and the tractor as the salvation of the country's food problem, they came to buy. The sale of these particular motor vehicles was most gratifying and marked the breaking down of the "hold-off" attitude that has prevailed the last few months.

Attendance this year averaged about 3000 more every day than last year. The opening day showed 21,105 this year compared with 10,200 on the first day of the exhibit in 1920.

A meeting of all exhibitors and their representatives was held the day prior to the exhibit and show's policy was agreed upon. This idea proved most beneficial to both the dealers and the prospects.

The show was again under the able jurisdiction of George Wahlgreen. The auditorium had been converted into a Greek temple showing paneled paintings of beautiful California scenery.

The basement housed the truck exhibit which included 80 vehicles. The large accessory exhibit was displayed in the second floor. The passenger car exhibit attained its usual high-grade standard.

Piston Ring Company in New Quarters

The fifth anniversary of the Stark-Inland Machine Works, Jefferson and Lucas Sts., St. Louis, Mo., was recently celebrated by a removal to new and larger quarters, giving the company ample room to care for the increasing demand for their products, chief of which are its piston rings.

Beginning with a force of 20 men and using 3000 sq. ft. in 1916, the new plant facilities now cover more than 70,000 sq. ft. of floor space and several hundred highly skilled workmen are employed. The management started in business with a capital of $30,000 while the present capitalization is $2,000,000.

Co-incident with the removal to its new home, the firm announced the absorption of the Shurnuff Manufacturing Co., of St. Louis, such transaction adding several very good lines to the Stark-Inland production.

Chief among the Inland products is the Spiral Cut piston ring, 6,000,000 of which have already been manufactured. The

New Home of the Stark-Inland Machine Works, St. Louis, Mo.

Stark Oiless, a popular priced, quick seating piston ring, was placed on the market five months ago and is meeting with much success.

The firm attributes its phenomenal results to its extensive advertising, $750,000 having been used for this purpose in the past five years.

New Tire Plant About Ready for Operation

Operation in the new $12,000,000 tire plant of the Kelly-Springfield Tire Co., at Cumberland, Md., recently completed, will begin very shortly. Officials say the plant was conducted at nearly pre-war prices for material. When running at full capacity, 5000 will be employed.

The property consists of more than 100 acres of tableland along the Potomac River about one mile from Cuumberland and is served by three truck-line railroads.

To provide first-class housing facilities for the new employes, the firm is conducting an organized housing development campaign.

Sales Managers' Association Broadening Scope

At a meeting of the directors of the National Association of Motor Truck Sales Managers, held in Chicago last week, a comprehensive program was laid out for accomplishment in 1921. It is believed that the scope of their activities will be considerably broadened, but their definite plans have not as yet been announced.

One of the directors, Homer Hilton, who has just severed his connections as sales manager of one of the prominent four-wheel drive truck companies, was elected "managing director" and has assumed active charge of the association's affairs pending the selection of a general manager. Mr. Hilton, it is said, is making an analysis of the past work of the association, and will shortly submit to its members a definite plan of procedure which is thought will create a closer bond of co-operation between factory sales departments and truck dealers.

The Sales Managers' Association was organized two years ago for the purpose of correlating factory sales policies with the local needs of truck dealers, in the belief that closer harmony of operating plans would augment for the greater success of the motor truck industry as a whole. This work has progressed with even more satisfaction than was considered possible.

It is thought their work now incorporates the plan of assisting dealers in the reorganization of their affairs, in order that all possible selling force may be had at this time, to help bring truck sales volume back to normal. The association officers and their connections are as follows:

President, H. T. Boulden, Selden Truck Corp.; vice-president, E. T. Herbig, Service Motor Truck Co.; secretary-treasurer, A. E. Schafer, Gramm-Bernstein Motor Truck Co.

State Farmers Can Use More Trucks

A survey completed by the N. A. C. C. indicates 2765 farmers are using trucks in the state of Maryland at the present time. As there are 47,908 farms in the state there is a large opportunity for sales. The preferred size of trucks is one ton.

Of the twenty-four counties reporting in Kentucky thirteen stated there was a real need for more trucks immediately. Preferred size is one ton. Only 213 trucks are owned in the state, distributed over sixteen counties. Ten counties have no trucks at all. There are 78,843 farms in the state.

There are 4700 trucks in farm use in South Dakota. Approximately 53 per cent of this total are in southeastern part of state; northeastern section of state 31 per cent of total. In the area west of Missouri River there are 16 per cent of total. This survey also indicates that the demand for trucks on farms will increase from now on, as farming is becoming more and more diversified.

New Divisions in S. A. E. Standards Committee

B. B. Bachman, of the Autocar Company, Ardmore, Pa., continues as chairman of the Standards Committee of the Society of Automotive Engineers, divisions of which have recently been announced. The 1921 committee comprises 300 members and has 25 divisions.

The 1920 Miscellaneous division has been divided into the screw-thread and parts and fittings divisions. Latter division considers such subjects as ball studs, horn mountings and serrated shaft fittings.

A few of the divisions pertaining to the motor truck industry and their more important subjects are as follows:

Ball and roller bearings div.—Roller bearings, thrust ball bearings and clutch release bearings; Battery Div.—Industrial truck batteries; Chain Div.—Rollerless bushings chains and roller chain sprocket tooth forms; Electric Vehicle Div.—Lamp voltage and vehicle motor ratings; Electrical Equipment Div.—Automobile wiring, generators and starting motor mountings, insulated cable and flexible-disk magneto couplings; Engine Div.—Fan Hubs and V belts; Iron and Steel Div.—Molybdenum steels, physical characteristics of the S. A. E. steels, sheet steel and steel tubing; Lighting Div. — Bases, sockets and connectors, headlight brackets and nomenclature; Lubricants Div.—Lubricants; Non-ferrous Metals Div.—Die-casting alloys, physical characteristics of non-ferrous alloys and wrought non-ferrous alloys; Parts and Fittings Div.—Ball studs, brake lining specifications, exhaust pipes, pipe fittings, horn mountings, serrated shaft fittings and universal joint companion flanges; Radiator Div.—Radiator standardization; Screw-thread Div.—Carriage bolts, pressure gage connections and drain cocks; Springs Div.—Test for parallelism; Transmission Div. — Clutch facings, transmission drive for speedometers and tire-pump mountings; Truck Div.—Body installation dimensions, power take-off, three-joint propeller shaft, front shaft rear ends.

A questionnaire was recently sent out to several hundred automotive manufacturers requesting information as to parts and materials for standardization.

Federal Ends Prosperous Year

Federal Motor Truck Company, in a statement filed with the Detroit Stock Exchange, reports sales amounting to $10,628,742.09 in year ending December 31, with profit of $745,878.66 before providing for Federal taxes, estimated at $200,000. This compares with sales of $10,525,265.04 and profit of $1,281,706.86 in 1919 before allowance for Federal taxes estimated at $420,000. The balance sheet of January 1, shows total assets of $4,525,340.50, against $4,452,976.93, on December 31, 1919. Surplus was $806,812.76, comparing with $1,883,863.55 a year ago from which $1,000,000 was taken in distribution of a 100 per cent stock dividend during the year. Current assets were $4,465,256.51 and current liabilities $446,526.15, showing working capital of $4,018,834.36.

National Tire Dealers' Association is Organized

Tire dealers representing 20 cities met in Chicago in a three-day session during show week and formed the National Tire Dealers' Association "to advance and safeguard the business interests of tire dealers and to promote a co-operative relationship between the manufacturer, tire dealer and buying public." Thomas F. Whitehead, 67th and Halsted Sts., Chicago, Ill., was elected president.

There will be no individual memberships. A closer affiliation to trade associations is to be instigated by restricting membership to local associations. Dues of 50 cents a month per member will be sent in by local associations according to their membership.

The convention decided to place Cleveland as the permanent headquarters of the organization and later elected Philip O. Deitsch as secretary, whose address is 6th floor Engineers Bldg. of that city.

The election of officers resulted as follows: President, Thomas F. Whitehead, Chicago; vice-president, R. F. Valentine, Cleveland; treasurer, Henry Stenzel, Milwaukee. The above named are members of the board of directors along with Secretary Deitsch and the following others: Edward P. Farley, Minneapolis; A. B. Clark, Kansas City; Joseph Roberts, St. Louis; R. J. Walters, Baltimore, and R. R. Woolley, Cincinnati.

Course in Transportation at New York University

Automotive transportation has been added to the regular course in Industrial Engineering at New York University beginning with the February term according to an announcement made by Dean Charles H. Snow, of the University of Applied Sciences.

The new study is the direct result of a series of lectures given to the engineering students of the University last year by F. Van Z. Lane, formerly chief transportation engineer of the Packard Motor Car Co., and now general maintenance manager of Hare's Motors.

The course will have more to do with the application of the motor truck than the mechanics of it, according to Mr. Lane. "The motor truck is part of the mechanical equipment of every industry, and engineers entering any industry must become more familiar with its application," he says. "The course in motor transportation will deal solely with the application of the truck as a transportation unit in industry and is not to be confused with motor truck design.

This course is said to be the first of its kind to be given by any University in connection with industrial study, and will include the following lectures: The Feature of the Motor Truck, Motor Truck Operating Costs, Motor Trucks versus Horses, Motor Trucks versus Railroads, Trailers and Semi-Trailers, Special Bodies, Loading and Unloading Devices, Scheduling, Routing and Dispatching, Maintenance and Garaging, Hiring, Training and Retaining Drivers.

Increasing Orders Herald the New Truck Era

Reports of stimulated interest in truck production and truck sales accelerate the scattering of all discouraging ideas as the automotive industry gets to normal, continue to arrive. L. B. Dudley of the Federal Motor Truck Co., Detroit, Mich., is confidant of the arrival of the new truck era.

"We would like to say," states Mr. Dudley, "however, that we can see a distinct rift in the clouds in the motor truck business. We are receiving orders almost daily from all over the country, and the fact that they are not localized leads us to believe that it is the fore runner of a general awakening in the truck buying business. We note a particular interest in truck buying by road contractors, by building material dealers, by municipalities.

"We have no doubt at all but that there is a backed-up demand for motor trucks, occasioned by men holding off their buying as long as they could and using up their present equipment. We are not only hopeful but very optimistic about the immediate future."

P. R. McMahan, assistant sales manager of the Indiana Truck Corp., of Marion, Ind., sees "service" as the new watchword.

"Business with us," says Mr. McMahan, "is rapidly getting back to normal. During the past sixty days we have booked many orders and have made some splendid distributor and dealer connections. Our distributors are not overstocked neither have we an abnormal stock of unsold trucks on hand at the factory or in storage. I am firmly convinced that service is to be the new watchword of the motor truck industry and we are making that phase of our business just as efficient as possible.

"I have found from personal observation that distributors and their organizations generally are quite optimistic, and working hard. Since the worst of the depression has passed, I am quite confident that the 1921 business will exceed our expectations."

Production Increases at General Motors

DETROIT, February 25.—According to H. H. Rice, vice-president of the General Motors Corp., production in the firm's plants, which normally employ more than 100,000 men has reached a 50 per cent basis.

When asked to discuss the automotive outlook, Mr. Rice expressed practically the same opinion as Henry Ford gave recently.

"I look for a great improvement in business conditions in the next thirty days," he said, "and a clearing of the industrial skies within the next sixty days."

Pierre S. duPont, president of the company, recently announced that there had been no change in the personnel of the firm. "The men who are executives, who operate our factories, are still with us," he said, "and we hope they will continue with us."

Chamber to Investigate Industrial Economy

WASHINGTON.—Information as to what steps are being taken by manufacturers, jobbers and retail merchants all over the country to cut down their operating expenses during the present business depression is being sought in a survey that is being made by the Domestic Distribution Dept. of the Chamber of Commerce of the United States.

A letter of inquiry was sent out recently by this department of the National Chamber to thousands of business men asking them such questions as these: "What are you doing to reduce your personnel cost to a normal basis?" "What have you done to reduce your publicity costs to a normal basis?" "State separately the approximate percentage of your reduction in service?" "Have you reduced your volume of credit business?" "Have you effected a saving by shortening time on charge accounts?"

Business men are further requested to give any information they may be able to furnish, and which is not specifically asked in the letter, which may help in solving the pressing need of lowering the cost of merchandising to a normal basis.

Government Vehicles Sale Begins at Baltimore

The governments unserviceable trucks, about 1000 in number, along with a large quantity of passenger cars, tractors, motorcycles and bicycles are now being unloaded on the market at four army camps in the country under the supervision of the Motor Transport Corps. The sale has begun at Camp Holabird, Baltimore.

The provision authorizes the Secretary of War to declare a surplus of equipment and dispose of it at such terms and conditions as he may deem advantageous. All government agencies are given first choice of the surplus equipment before it is for sale at auction. It is hardly likely that much of this surplus will be absorbed by the various agencies.

The sale has hastened a storm of protest from manufacturers and dealers throughout the country but the appeals have been ignored. At Baltimore where the first sales were made, the local association did all in its power to stop the auction. On the second day of the sale a few of the big trucks brought as much as $2,400 while the lowest price brought $40.

Samson Working Overtime

One of the hopeful notes of renewed production activity comes from Compton, Cal., where the Samson Tire and Rubber Corp., is said to be not only in full operation, but is running until 9 o'clock at night.

Mr. Schleicher, president of the company, reports that during the months of November and December the company enjoyed the biggest business of its existence. At present the company has sold more tires and tubes than they are able to produce.

Stewart-Warner Acquires Van Sicklen Company

Purchase of the business and assets of the Van Sicklen Speedometer Company, of Elgin, Ill., by the Stewart-Warner Speedometer Corporation, has been announced, effective March 1. The former retains its corporate existence as the capital stock was not absorbed, only the major part of the merchandise and fixtures and other goods and chattels of the Van Sicklen Company.

In order to comply with the bulk sales law, the buying company has notified all creditors that it has acquired the patents, patent rights, applications, and licenses of the selling company, together with all the tangible assets, and will assume specified obligations up to $260,000. It will pay for such assets $725,000 in cash and 15,000 shares of the Stewart-Warner Corporation capital stock. The latter company has sold notes, bearing eight per cent interest to the extent of $2,000,000 to the Central Trust Company of New York, necessary in financing the deal with the Van Sicklen Corporation, and also to retire back loans.

The Van Sicklen Company removed from Aurora to Elgin in 1915, starting in the watch factory plant with 100 men, increasing this to 525, although of late the number has dwindled to 240. The absorption will make no change at Elgin and the operation will continue as before with the possible exception of some slight changes in executive officers and supervision.

It is announced that the branches of the Van Sicklen Company at Toledo, Ohio, and Newark, N. J., will be closed and construction centralized at Elgin.

Steel Corporation Absorbs Detroit Trailer

The Detroit Trailer Co., of Detroit, Mich., has been purchased by the Mansfield Steel Corp., also of Detroit. The firm plans to manufacture a number of its parts for the fabrication of a complete line of trailers for all purposes. The company's plant has complete facilities for special trailer equipment for road building, trailers for municipal work and other special bodies.

Men are being sent out by the firm to cover the southern and western territory now under development. The eastern territory is to be covered in the immediate future. The Mansfield Steel Corp. has met with much success in the manufacture of its steel truck bodies, tow hooks, hand hoists and other body equipment.

Prices on U. S. Trucks Guaranteed

The United States Motor Truck Co. has issued a guarantee against decrease effective until July 1 of the present year. In a recent announcement the company said, "We are strictly in accord with the movement which favors the right prices on all commodities to help restore normal living conditions, provided they are sound and sane business reasons for such prices being reduced."

Instruction, Not Selling, is Motive of Tractor Show

Members of the newly formed Horse Association whose purpose it is to combat the tractor, who visited the sixth annual tractor show at Columbus, Ohio, February 7 to 12, left the exhibit with the utmost discouragement. In an inverse ratio, those far-thinking men who realize the indispensability of the tractor, left the exhibit with confidence and energy.

The exhibition was large and well handled. It presented a great number of new models and plenty of interesting innovations in the accessory line.

But the most beneficial results came from the daily tractor sessions which were attended by the farmers from a large radius. An abundance of young men prevailed, from the new school of agriculture who were striving for new ideas on farm betterment and improvement. These sessions, handled by able speakers, did much to break down the sales resistance and combat the anti-tractor movement.

The show is commended on the fact that it was not to be a selling show but an educational council. However, both results were attained, but the educational feature was in prominence.

Pierce-Arrow in Service Convention

For the purpose of acquainting Pierce-Arrow distributors' service men with the design and construction of Pierce-Arrow trucks and passenger cars, a mechanical convention was recently held at the firm's factory at Buffalo, N. Y.

The program was varied and full of action and interest, being divided between lectures, shop demonstrations and road tests. Col. George W. Mixer, president, gave the address of welcome. He was followed by David Fergusson, chief engineer, who interestingly outlined Pierce-Arrow design and construction. The afternoon session consisted of lecture demonstrations of electrical equipment and carburetor equipment given by the Pierce-Arrow engineers.

Three days of the sessions were devoted to mechanical demonstrations. For this purpose the delegates were divided into five groups, which rotated through corresponding divisions of the mechanical work until all was covered.

The convention was closed by Fred J. Wells, service manager, in a talk outlining the work of the Service Department, its organization and its problems.

English Firm to Motorize

From the time of the organization of the company, Cross and Blackwell, London, England, famous the world over as makers of fine jams and jellies, have used horses for delivery purposes. After an extensive research into the relative merits first of horse team and motor truck delivery, it was decided that the firm's transportation should be handled by motor trucks. Recently an order was placed for a small fleet of 1½-ton Selden trucks.

Many U. S. Trucks Represented in Sweden

The motor truck has just passed its infancy in Sweden, its possibilities are realized, and there is a great deal of interest as a result. There has been a great influx of German trucks and they are hard to compete with on account of their low prices. During the period January to November, 1920, the United States exported 528 trucks in Sweden valued at $917,785. The number exported to Denmark and Sweden was 294 and 135, respectively.

The following American trucks are handled by Swedish dealers: Atterbury, Autocar, Chevrolet, Clydesdale, Corbitt, Diamond T, Duplex, Federal, Ford, F. W. D., Garford, Giant, G. M. C., International, Kissel, Lansden electric, Maxwell, Nash, Paige, Reo, Republic, Selden, Sterling, Traffic, U. S., White and Wichita.

One of the obstacles confronting American exporters of commercial cars, is the vast quantity of French, German and British war trucks which are still unabsorbed. These trucks are offered at rather low prices and until this situation is adjusted export sales will not move so readily. It is hoped, however, that the readjustment will be complete in a year's time.

New Country Has Truck Possibilities

Czecho-Slovakia is now using motor trucks for the transportation of freight. A new corporation in Prague which operates taxicabs and a few omnibuses has plans for operating trucks. It is said that so far financial difficulties have kept them from realizing their plans. There is not even motor transport for trucks in the cities, all baggage which cannot be carried being wheeled through the streets in push-carts. The government operates about 10 lines of post automobiles which carry a limited number of passengers. These, together with the numerous mail coaches, are necessitated chiefly by the fact that many railway stations, even important ones are some distance from the town or city which they serve.

Massachusetts Needs Trucks in Event of Rate Advance

If railroad rates are further advanced in that state 532 members of the Associated Industries of Massachusetts have stated that they would use trucks exclusively; which, in many cases, would necessitate new fleet complements. If railroad rates and truck rates and service were equalled 138 indicated they would use rail; 59 would retain truck service; and 52 were uncertain.

For 50 per cent of members out-of-town transportation is done by outside firms; the other 50 per cent use own trucks. Most of the shipments are L. C. L. The average saving reported on each shipment as compared with railroad is 45 hours.

Motor Truck President a Member of Harding's Cabinet

The motor truck field has been singularly honored by the appointment of Edwin Denby, of Detroit, as Secretary of the Navy in President Harding's cabinet. His appointment was made public February 26th. Mr. Denby is president of the Denby Motor Truck Co. of Detroit, Mich., and has long been identified as a prominent figure in the automotive field.

During the war he enlisted as a private in the Marine Corps and after much conscientious and painstaking work reached the rank of colonel.

Colonel Theodore Roosevelt has been appointed Assistant Secretary of the Navy. Mr. Denby, like Secretary Daniels, favors a larger navy and will lend his power in greatly increasing the present program.

Employment in Automobile Industry Shows Increase

The Bureau of Labor Statistics Dept. of Labor, Washington, D. C., has made a comparison of thirteen basic industries to show the change in employment and pay rolls. Comparing December, 1920, with January, 1921, twelve industries show a decrease in the number of persons on the payroll while an increase of 2.5 per cent is shown in the automobile industry.

These facts are particularly gratifying to the automotive industry since this business revealed a depression of 64.6 per cent in employment in a comparison made between January, 1920, and January, 1921.

Officers for Oldfield Tire Are Announced

On behalf of the Oldfield Tire Company of Akron, of which he is president, Barney Oldfield announces the appointment of J. M. Dine as vice-president and general manager.

Mr. Dine has been identified with the rubber industry in various capacities for the past fourteen years, first with Goodyear and later with Firestone.

Other officers recently chosen were B. M. Robinson, secretary; H. L. Allsopp, treasurer, and M. E. Moffett, assistant treasurer.

City Trailer Associations Forming

Movements are on foot in Philadelphia and in Dallas, Tex., to form local associations of trailer dealers for the purpose of acting in concert in the general promotion of trailer sales, in furthering highway improvement and securing proper recognition of the trailer in motor vehicle legislation. Associations of motor truck dealers in several other cities have broadened their scope and changed their titles to Motor Truck and Trailer Dealers' Association.

Gasoline Prices Continue to Drop

Prices of gasoline and crude oil have taken a downward trend in the past few weeks in spite of the fact that gasoline consumption this winter in northern states is 150 per cent greater than last year.

A reduction of two cents a gallon for gasoline was put into effect Feb 1, at filling stations of the Sinclair Refining Co. in Cleveland. A day before this reduction the Standard Oil Co. at Chicago made a less substantial cut and two days later made an additional one cent reduction.

On Feb. 3 the Atlantic Refining Co. made a two cents reduction of both gasoline and kerosene for the whole of Pennsylvania.

Cuts of 25 and 50 cents a barrel in crude oil were reported in Pennsylvania, Wyoming and Texas.

The most appreciable drop in gasoline has been just east of the Rockies, where a cut of from 1 to 6 cents has been reported. Very little effects from the cut have been felt on the Pacific coast.

Prevent Truck Deterioration

A timely bit of advice is being disseminated by the Autocar Company of Ardmore, Pa., on truck care. The warning is as follows:

"On account of the lack of proper storage facilities available, our government has been forced to store in the open, during the years of 1918, 1919 and 1920, many idle motor vehicles. Naturally, they must have greatly deteriorated.

"Many motor truck owners fail to appreciate the rapid deterioration which takes place when their equipment is not stored or garaged where it is protected from the elements. Trucks which are permitted to stand idle and uncared for in the snow, sleet, rain or hot sunshine soon become badly damaged and unsafe.

"Internal as well as external parts, cylinder walls, bearings, frame, parts, bolts, nuts and rivets become pitted and rusted.

"Do not fail to protect your investment in motor trucks as you would any other piece of machinery when not in use by keeping them in a dry, covered place and properly oiled and greased."

Makes Big Mexican Shipment

The Southern Motors Manufacturing Association, Ltd., Houston, Texas, the recently organized firm manufacturing automobiles, announces a trainload shipment of trucks, tractors, trailers and passenger cars to Mexico City.

The firm started production just a short time ago in its new and up-to-date factory. Large increases in the plant facilities are now under consideration.

The Automotive Service Promotion Association of Western Massachusetts has shortened its name by dropping the word "Promotion." Regular meeting are being held the second Tuesday of each month and the association now has 22 members.

NEW COMMERCIAL CARS

J. I. Case Introduces a Two-Ton Truck Replete With Features That Make for Efficient Farm Service

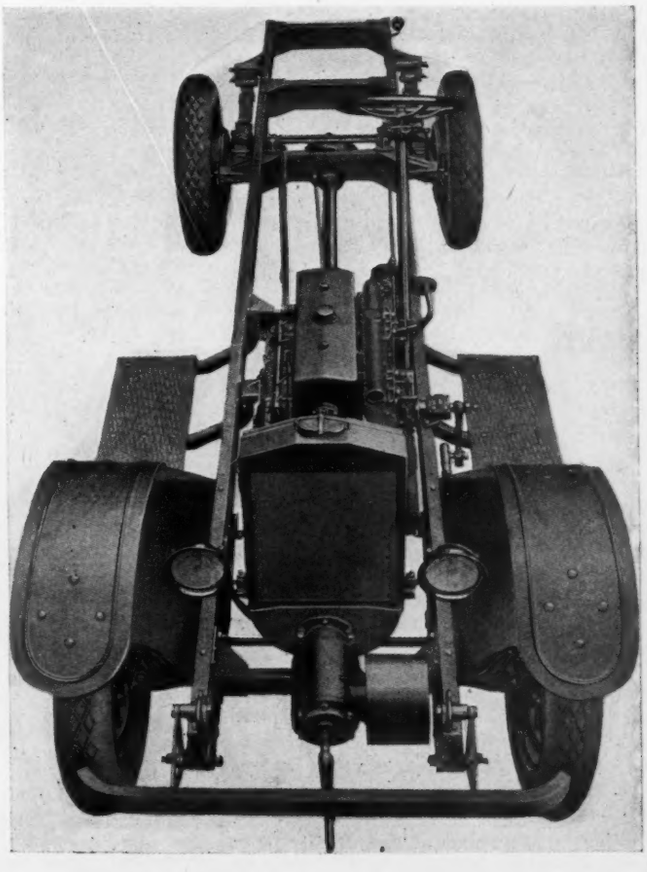
THE J. I. Case Plow Works Co., Racine, Wis., which for years has been providing the farmer with dependable farm implements and machines, recently introduced a truck, primarily designed and built for the farmer's use.

Through years of continued study of the farmer's requirements, the company has been enabled to incorporate in the J. I. Case 2-ton farm truck features that make for successful operation in general farm work. For instance, full cognizance has been taken of the ruinous effects of dirt, dust and grit which greatly shortens the life of vital parts by providing protection for these parts. In fact, the truck is designed around the power plant and the "U"-shaped, one-piece boiler plate frame of the Wallis tractor, although certain changes were necessary for the installing of this equipment.

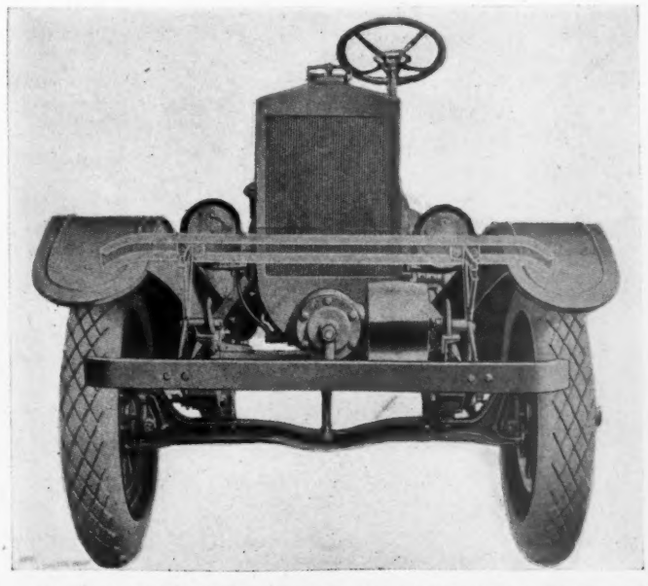
In addition to the varied uses to which this truck may be applied in the general run of farm work, a belt pulley, which can be supplied, doubles its use as belt power is always available.

The frame main is made of 6-in. 8 lb. channel iron. There are five cross beams which are riveted to the side members and reinforced at the corners by heavy gusset plates. Two hooks are provided at the front and rear and a bumper is also provided. The latter is pivoted at the ends and can be easily swung up out of the way either to crank the motor or when the belt pulley, which is mounted at the front of the truck, is used. The sub-frame as previously mentioned is the patented Wallis "U" frame, the front end of which is supported by a trunnion pivoted on the front cross beam and the front end by two steel brackets secured to the main frame. The "U" frame itself supports the engine, radiator, front power take-off, transmission with controls and the tire pump as an assembly. Besides, it acts as a dust-proof under housing as well as an oil reservoir for all these parts. Access is afforded to all the interior parts through hand holes.

The engine, which is almost identical to that used in the Wallis tractor, is a four-cylinder, valve-in-head type with removable head. A feature is the removable cylinder sleeves, which are accurately machined inside and outside. The cylinder block is a single casting. The bore and stroke is 4¼ and 5¾ in., respectively. The engine operates at a normal speed of 900 r.p.m., which with the final gear reduction of 8 to 1, provides a truck speed of 15 m.p.h. Engine speed is controlled by a hydraulic governor. It has an independent control for use when the belt pulley is in operation. The pistons are of a special grade of close-grained grey iron, ground to fit and accurately weighed and balanced so that all four weigh alike. The connecting rods are drop forged and metallic shims are provided to provide an easy means of making adjustment to take up wear. The crankshaft, which is of chrome vanadium steel, heat treated, is 2¼ in. in diam., and revolves in bearings, which have a total length of



Right: Plan View of New Two-Ton Case Chassis, Showing Bumper and Pulley Features.



Straight Front View, Showing Location of Belt Pulley and Phantom of Bumper When Raised for Cranking or Belt Power Work

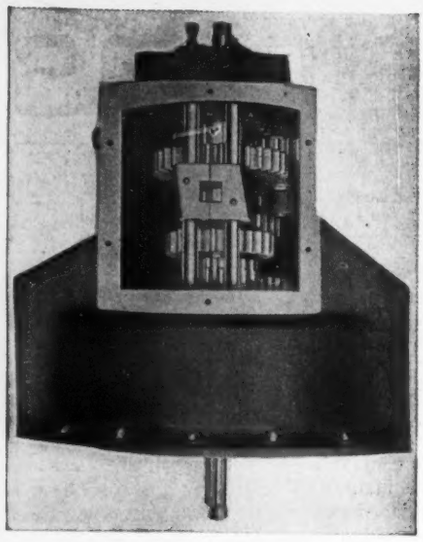


Plate Removed, Showing Gears of the Wallis Make Gearset. The Power Tire Pump is Driven From Reverse Idler Gear.

10¾ in. These and the connecting rod bearings are babbitt lined phosphor bronze. The camshaft with its integral cams is a one-piece drop forging.

Lubrication is by combination pump and splash. The system includes an oil indicator, which is placed on the footboard in front of operator.

Ignition and lighting is by an Eisemann magneto-generator. Light is provided by a battery when the engine is not running. The magneto generator is attached to a bracket that is bolted on the rear of the timing gear housing. The pump is fastened to the front of this housing, and the oil filler is cast directly onto the housing at the top, a location that affords ready access.

The gasoline tank, which has a capacity of 20 gallons, is mounted on the dash. It is provided with internal baffles to prevent surging of the fuel.

Cooling is by a centrifugal type pump mounted on the right side of the engine. The water capacity of the system is 6 gallons. The radiator has copper tubes and is provided with a drain at the lowest point. Cooling is further aided by a belt-driven fan taking power direct from the crankshaft. This fan is said to be capable of circulating 4800 cu. ft. of air per minute. A tractor type of hood, which is used to cover the engine and which is left open at both sides, not only tends to keep the engine cooler, but also makes the engine more accessible.

From the engine the power is taken direct through a transmission of Wallis design, which provides three speeds forward and one reverse. It is ball bearing equipped throughout, completely enclosed and is immersed in a bath of oil. All the gears are cut with five pitch teeth and have a 1-in. face. On high gear the drive is direct. The forward end of the transmission housing is provided with a flange for assembling to the engine housing, so that the transmission housing is carried by the same sub-frame as the engine. The clutch, which is fully enclosed, is of the twin disk make, and is held in engagement by a spring.

Final drive is through a Torbensen rear axle, which provides a final gear reduction of 8 to 1. The front axle is also of Torbensen make.

The Ross steering gear is used and all parts of the steering linkage including the steering arm, tie rod and drag link are made straight. The gear can be removed from the truck without disturbing the engine and vice versa.

All four springs are semi-elliptic, the front measuring 40 x 2½ in. and the rear, 53 by 3 in. All shackle pins are fitted with oil kips. Each pin has 21/64 in. hole drilled through it, filled with cotton wicking, through which oil is fed by capillary attraction. The rear shackles are under compression and the springs are so designed that they are practically flat under load. Hotchkiss drive is employed.

Wood wheels with demountable rims are standard equipment and are fitted with Goodyear pneumatic tires, 36 x 6 in. front and 36 x 7 in. rear.

The space under the seat is divided into two compartments by a vertical partition in the center. The compartment on the left is again divided into an upper and lower space. Below is the tool box which draws out toward the side, making the getting of tools convenient and above is the storage box for skid chains, jacks, etc. The compartment at the right accommodates the storage battery.

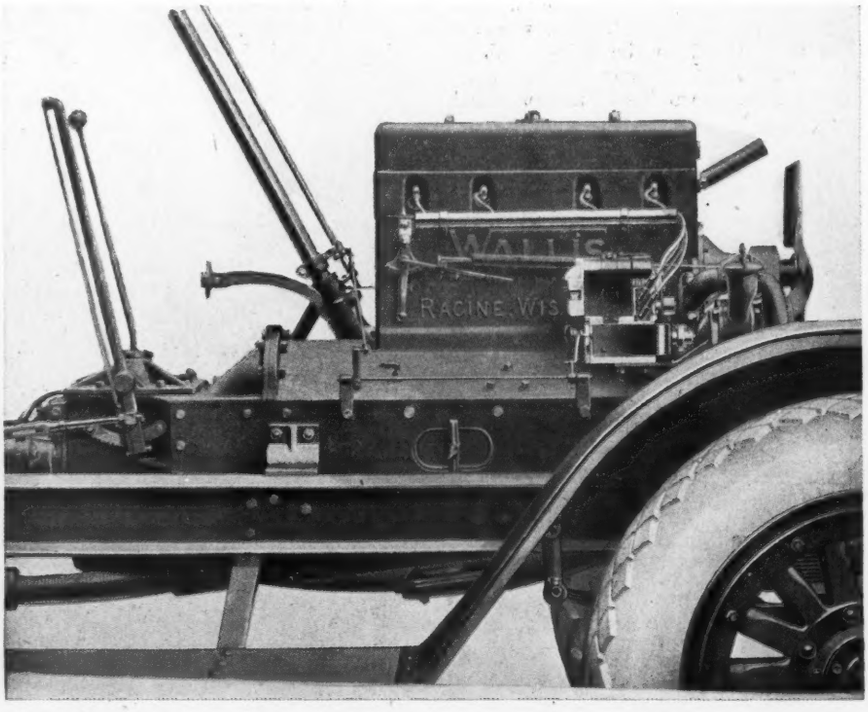
The cab is a self-contained unit and can be easily removed from the chassis by simply disconnecting two wires to permit unbolting. The windshield is horizontally divided in halves. The upper half can be swung up under the roof of the cab or adjusted to any of several intermediate positions. The windows in the doors can be removed and racked under the roof when not needed. In the rear of the cab a three section window, each section of which slides laterally, is provided. The seat is furnished with seat cushions and upholstered back.

The power take off unit is furnished as an extra. It comprises a belt pulley, a pair of bevel gears and a separate clutch. The gears are mounted on roller bearings. The entire combination is enclosed in a bath of oil. The pulley, at crankshaft speed, gives a belt speed of 2400 f.p.m. It is 10 in. in diam. and has a face wide enough to accommodate a 7-in. belt. The pulley is mounted directly in front of the radiator on the driver's side, simplifying lining up to belt driven machinery.

The weight of the truck complete, with body, cab, fuel and water is 5500 lb. The loading space measures 66 in. x 120 in. inside the stakes. The wheelbase is 144 in., the tread 59 in. One of the features of the truck is its large ground clearance, a feature that makes it particularly suitable for farm work.

The standard equipment includes the following: Body and cam complete, seat cushions and upholstered back, front fenders and running board, tool compartment with complete tool kit and jack, Kellogg tire pump, bumper, Veeder odometer, horn, two headlights, tail light and spotlight.

A commercial motor license in Toronto, Canada, costs $13 for vehicles of two-ton capacity or less. A rate of $6 per ton or fraction is charged on every car of over two tons.



The Engine, Which is Almost Identical to That Used in the Wallis Tractor, Front Power Take-Off, Transmission With Controls, Power Pump Assembly and the Radiator Are Supported in a Special Sub-Frame

International Exhibited Speed Truck at Show

A NEW model motor truck was exhibited at the National Tractor Show in Columbus this year by the International Harvester Co., Chicago, Ill. It is known as Model S and is rated at ¾ ton. The design is particularly for light speedy work and the addition of this model to the International line gives a range of from ¾ ton to 3½ tons to International transportation service.

Farmers looking for a small speedy truck will find this new model very suited to such service. Its speed and its pneumatic tire equipment are important features.

The capacity of the new model in pounds is 1500. It has a speed of from 25 to 30 m.p.h.

The engine is a Lycoming, having a bore and stroke of 3½ in. and 5 in., respectively. It is a 4 cylinder vertical cast in block L-head type. The cylinders are cast with integral water jacket and are arranged to permit complete water circulation around each cylinder and around the valve parts. The cylinder head is cast separately. The cast pistons have three rings each. The piston pins are high-grade steel, drilled hollow, case-hardened and ground. A special locking device holds each stationary in the piston. The connecting rods and crankshaft are double heat treated steel drop forgings. The valves have cast iron heads electrically welded to steel stems. The valve tappets are the mushroom type made of special alloy steel.

Lubrication of the engine is by pump and splash. Ignition is provided through a Connecticut system, the distributor being mounted on the engine. The battery is a Prest-O-Lite. Fuel is fed to the engine from a 12-gal. tank in the cowl through a 1½-in. Ensign carburetor. Cooling is effected through a Rome-Turney tubular type radiator, a thermo-syphon type of water circulation and a service fan.

From the engine the power is carried back to the transmission through a Muncie dry plate multiple disk clutch. The transmission is the same make as the clutch. It is a sliding gear type, giving three speeds forward and one reverse. It is built to the bell housing of the engine to form a unit-power plant.

From the transmission the drive is carried back to the rear axle through two Thermoid universal joints and a one-piece propeller shaft. The gear reduction from the engine to the rear wheels is 6.3:1.

The rear axle is a Torbensen, specially designed for the International truck. It contains a new design of differential. This axle is the internal gear type. The load carrying member is a heat treated drop forging.

At the rear the springs are semi-elliptic, 54 in. long x 2½ in. wide. There are two auxiliary springs also of the quarter-elliptic type, 24 in. long. The front springs are semi-elliptic, 2½ x 38 in.

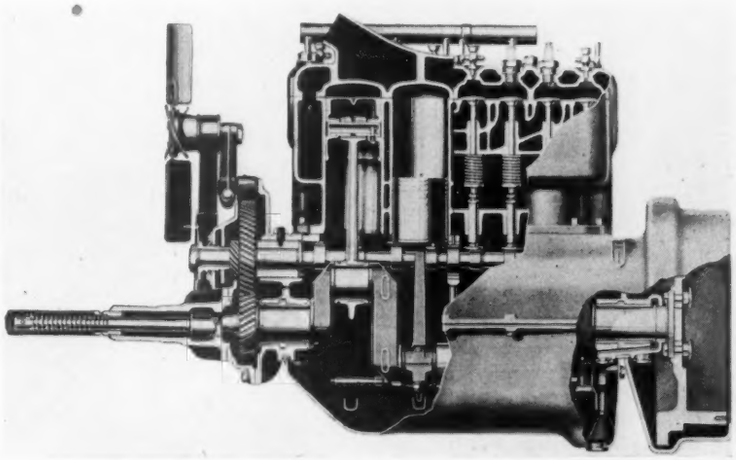
The wheels, which are International make, are the wooden artillery type with demountable rims and 34 x 5 in. Silvertown pneumatic cord truck tires. A Kelogg power tire pump is regular equipment. It takes its power from the transmission gears.

The service brake contracts on the rear axle drum and is operated by the driver through a foot pedal. The emergency brake expands on the rear axle drum and is controlled by a hand lever.

The dashboard on the truck is metal. The spark and throttle control levers are on the steering post. There is an accelerator in the floor under the driver's foot. The speed-change lever is in the center to the right of the driver. The engine clutch is controlled by a foot pedal.

Regular equipment, in addition to that already mentioned, includes the following: Auto-Lite self-starter, electric lighting system, electric headlights, both bright and dim, and a tail lamp, front fenders, electric horn, set of tools and the Alemite system of chassis lubrication by which nipples are attached regularly to all the parts of the chassis lubricated by grease and a grease gun is attached to the nipples and a turn of the hand forces grease to the part without soiling or smearing any part with grease.

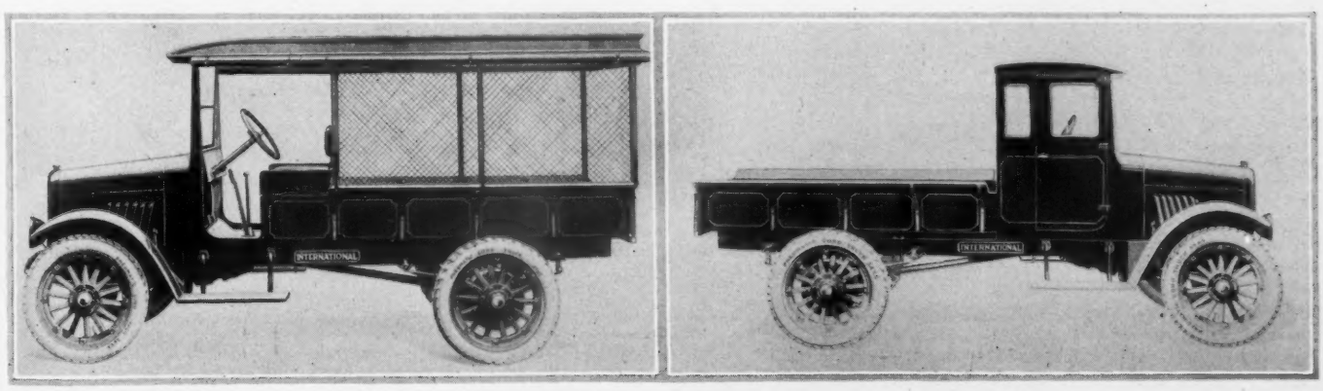
A convertible farm body of the company's own make and design is supplied as an extra. The cab, which is supplied as an extra also, is the inclosed type. Any other type of body can be obtained from the maker as an extra. Spare rims and tires and a speedometer to attach to the gears, already provided in the transmission, can be obtained as extras also.



Cutaway View of the Left Side of the Three and a Half by Five Inch Engine Used in the New International. The Cylinders Are Cast With Integral Water Jacket

---

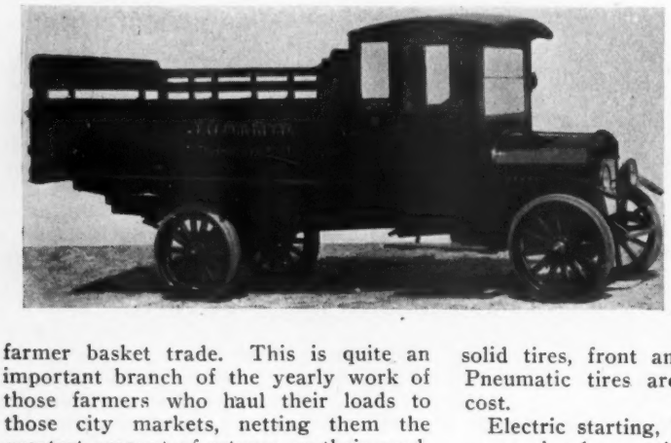
Records compiled by the American Automobile Association show that 8,234,490 passenger cars and 945,826 trucks, a total of 9,180,316 motor vehicles were registered in the United States in 1920, an increase of 2,114,870, compared with 1919. Motorcycle registrations were 271,230.



New Model S International Three-Quarter Ton Speed Job Equipped With Two Styles of Cabs: Open Express With Canopy Top and Screen Sides, and Open Express With Inclosed Cab

New One and a Half Ton Norwalk is Assembled From Standard Units

THE latest addition to the Norwalk line of trucks is the 35 E Special, a 1½-ton job assembled throughout of standard units, which is selling for $2285. In appreciation of the exacting requirements demanded in farm service, Norwalk models have been designed not only as a transportating medium for general trade, but also with an eye on the need of making them most adaptable for applying to general farm work; in fact, this specialization has resulted in a short wheelbase 1½-ton model as well as the new 35 Special, which is a compact job, designed to be particularly applicable to farmer basket trade. This is quite an important branch of the yearly work of those farmers who haul their loads to those city markets, netting them the greatest amount of returns on their products.



New Norwalk Model Equipped With Body Specially Designed for Farmer Basket Trade.

The line now includes, with the above, a 1-ton model, solid tire equipped, selling at $1695; a 1-ton speed truck, having 35 x 5 cord pneumatics, and a 1½-ton model, solid tire equipped, listing at $2025. The final drive of all these models is worm and they are all standardly equipped with electric lighting systems.

The engine of the 35 E special model is a four cylinder, detachable head type Buda CTU. It has a bore and stroke of 3¾ x 5¼ in., respectively, and an N. A. C. C. rating of 22.5 hp. The force feed system of lubrication is employed.

Carburetion is through a Zenith carburetor, to which gasoline is fed by a Stewart vacuum system and ignition is furnished by a Delco distributor; a Bosch magneto is also provided if desired. The cooling system includes a cellular type radiator, that is carried on a coil spring above and below a hanger bracket, and which has a detachable shell, said to facilitate rapid repairs.

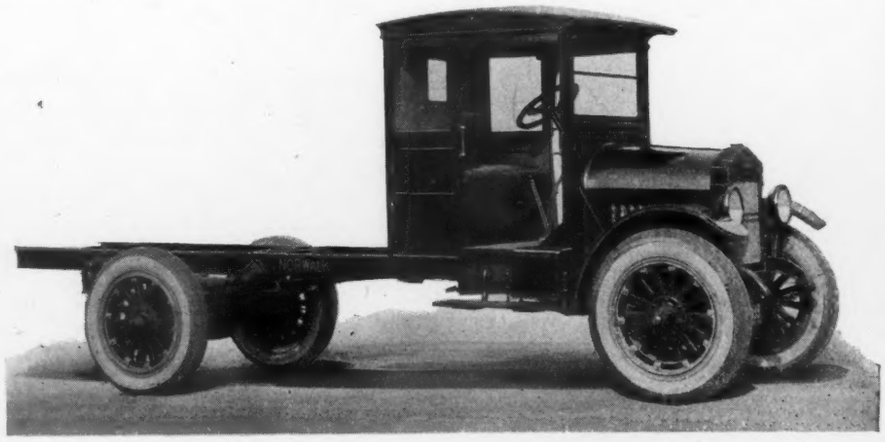
From the engine the power is carried back through a 12-in. Borg and Beck clutch, which is used with a Grant-Lees transmission, and a heavy two-piece propeller shaft, supported by a center bearing and equipped with three Spicer universal joints, to a Sheldon worm-drive rear-axle. This axle is inclosed in a one-piece housing and its drive shafts have hexagon ends, which fit into hexagon hubs in the wheels. This construction is claimed to do away with such possibilities of trouble such as the shearing off keys and the sticking of wheels on taper shafts, the later when making repairs. The front axle is also of Sheldon make, to which is assembled a Ditwiler steering gear. Roller bearings are used throughout.

The Parrish & Bingham frame has a depth of 5½ in. and provides a loading space of 11 ft. 3½ in., which is measured from the back of the driver's seat and a wheelbase of 143 in. The frame is mounted on four semi-elliptic Perfection springs. This truck is standardly equipped with 34 x 3½ in. and 34 x 5 in. solid tires, front and rear, respectively. Pneumatic tires are furnished at extra cost.

Electric starting, lighting and ignition as previously mentioned, is furnished as regular equipment and includes a Dyneto starting motor, a generator and Willard storage battery. The manner in which the battery is carried is one of the exclusive features of this job. It is carried in a specially designed spring cradle that is said to absorb all the shock and vibration of rough going encountered when negotiating over fields and poor country roads. Besides, its location on the running board, away from harm and interference, permits of ready access for examination and minor repairs. The protection afforded the battery by this arrangement is said to make its use more economical than is possible with the conventional method of storage battery mounting, because of the elimination of common battery difficulties incident to excessive vibration.

All models of the Norwalk line can, if desired, be furnished with a combination cab, permitting ready conversion into an open or closed type cab. The doors and windows are of the drop type.

The standard equipment includes an open driver's seat, a power tire pump, when pneumatic equipped, a full set of tools, a jack, which is carried in one end of the driver's seat, an electric horn and a painted chassis. The Norwalk Motor Car Co., Inc., is located in Martinsburg, West Virginia.



One and a Half Ton, 35 Special Norwalk Equipped With Giant Pneumatics. It is Assembled From Standard Units

White Reports Good Net Profit

The annual report of the White Motor Company for the year ended Dec. 31, 1920, shows net profits after all charges of $2,410,014, equivalent to 9.64 per cent on the $25,000,000 capital stock, or $4.82 a share of $50 par value, compared with 20.64 per cent, or $10.32 a share on the $20,000,000 capital stock in 1919. After payment of dividends and adjusting Federal taxes the surplus was increased $183,242 to $8,472,311. Gross sales were $51,998,122, compared with $41,667,696 in 1919. The company charged off $1,193,927 as loss on inventory, which now amount to $22,989,073, compared with $15,728,141 at the end of 1919.

Detroit Employment Increases

Material growth in employment is reported by the Employers' Association of Detroit during the past month. March 1 the 79 firms connected with the association were employing 62,878 men, an increase of 8008 over the number reported a week previous and a gain of 17,905 since February 1.

Kissel Builds New Speed Truck

THE new Kissel 1-ton speed truck, which was just announced by the Kissel Motor Car Co., Hartford, Wisconsin, and is known as the "Express," is in keeping with the same standard of workmanship and quality as is built into the other four larger Kissel truck models. While primarily it is a full 1-ton model, built and equipped to maintain a speed of 35 m.p.h. with capacity load, the design of the frame, axles and springs and general appearance is that of a 1½-ton model.

Among the noticeable features that depart from the usual equipment and common practices in building trucks of the 1-ton speed size and capacity is that it is equipped with the regular Kissel-built truck engine that is used in the Kissel general utility 1½-ton model. Likewise the frame and heavy Kissel front axle give the same impression of oversize. The latest type of worm drive rear axle is standard equipment, the wheelbase is 140 in. and it is equipped with 34 x 5 in. pneumatic tires front and rear.

Prices are as follows f. o. b. Hartford, Wis.: $1585 for stripped chassis standard equipped without seat, but including two oil lamps, tail lamp, jack, complete set of tools, gasoline tank and pneumatic tires, and $1985 for chassis and body complete, including all extras such as electric lighting and starter, express type body and top, cord tires, painted complete.

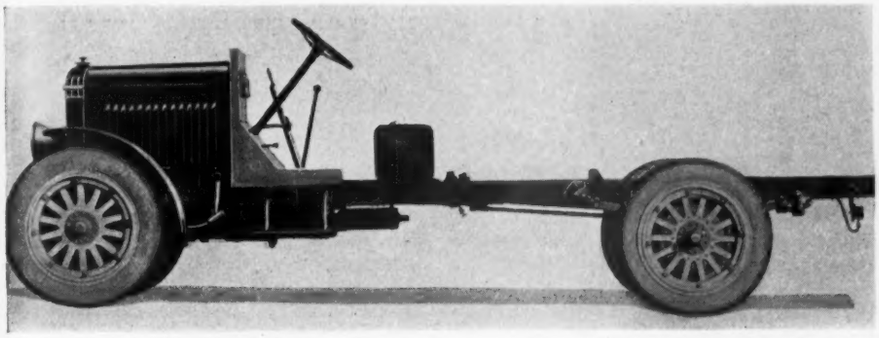
It is primarily designed for retailers and merchants who want a quick delivery truck for speedy work in city or suburban districts, also for manufacturers and wholesalers who want a light truck as an auxiliary to their heavier models. Besides, it is adaptable to the requirements peculiar to farm service.

The entire power plant, including the transmission, is identical to that employed in the general utility 1½-ton model. The bore and stroke of the engine, which, as previously mentioned is Kissel make, is 3⅞ x 5½ in., respectively. Maximum road speed at the maximum engine speed, which is 1785 r.p.m., is 35 m.p.h. The clutch is a multiple disk dry plate type.

The radiator, which is also Kissel design, is spring suspended and is made up of tubular cores mounted in a cast shell.

From the transmission the power is carried back to the rear axle through a tubular propeller shaft equipped with a double universal joint with center bearing. Final drive is through a worm type axle. The Kissel built front axle is of the conventional "I" beam section, 2½ in. deep.

The pressed 22 per cent carbon steel frame is of 5-in. section, 3/16 in. gage, and is 34 in. wide. It is supported by four semi-elliptic alloy steel springs, 38 in. x 2¼ in. front and 50 in. x 2½ in. rear. The front and rear wheels are equipped with 34 x 5 in. pneumatic tires. The 140-in. wheelbase permits a length of 8 ft. 6 in. from back of driver's seat.



Side View of the New Kissel Speed Job. It is of One-Ton Capacity and is Rated at 35 M. P. H.

Unique Shackle Bolt Lubrication on New Service Speed Truck

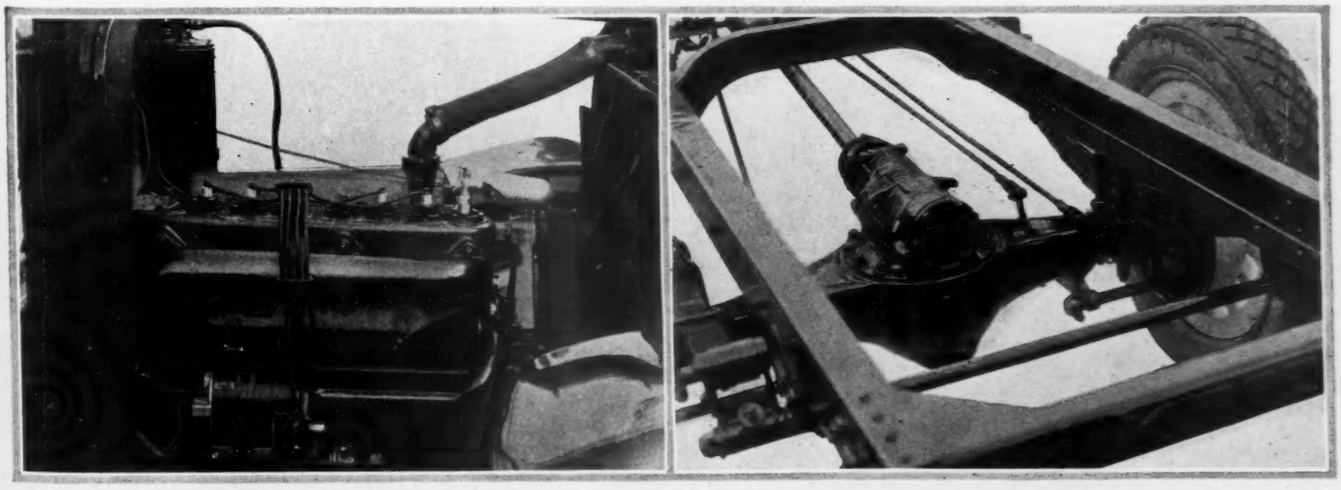
The service Model 15, the "Red Pyramid Speed Truck," which has recently been announced by the Service Motor Truck Co., Wabash, Ind., contains a rather unique feature of construction in the spring shackle bolts and their method of lubrication.

A Unique Shackle-Bolt System of Lubrication Features the Service "Red Pyramid" Job. Latest Product of the Republic. It is a Delivery Truck and is Known as the Model "10-Express."

The shackle bolt is drawn from a single sheet and after being carbonized is finished in the usual manner.

These bolts are 1¼ in. in outside diam., containing on the inside of the bolt a reservoir ⅞ in. in diam. This reservoir is used to carry an oil supply which feeds by splash through felt pads from the reservoir to the working surfaces outside.

The oil supply can easily be replenished by lifting up the spring cap on a specially designed carrier and filling with an ordinary measure.



Right: The Engine, Which is Kissel Make, and the Transmission of the New Job is the Same as That Used in the Utility Model. Left: Showing the Rear-Axle Assembly, Which is Worm Drive. Note the Heavy Oversize, Reinforced Frame

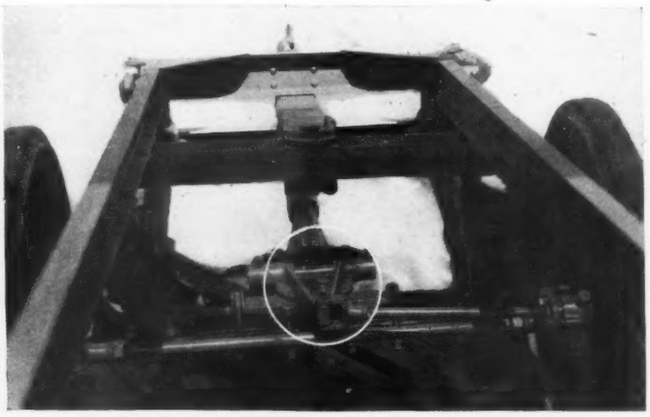
Warner Announces New Two-Way Side-Dump Body and Heavy-Duty Four-Wheel Trailer

LIKE many other concerns the Warner Manufacturing Co., Beloit, Wis., refused to recognize the present business depression from which we all are rapidly emerging as particularly dangerous or of indefinite length and has instead showed confidence in rapid renewal of normal business by devoting much time and effort toward the designing and constructing of new jobs. These activities resulted in the introduction of a new two-way side dump body, designed to meet the conditions peculiar to municipal ash, rubbish and garbage removal and a new heavy duty four wheel truck trailer in four sizes.

The two-way side dump body and trailer is primarily an outfit to be used with automotive equipment, although it also possesses provisions for the practical utilization of horses or mules. This is quite an important feature; in fact, a requirement in the hauling service of some cities as in a good many of them the trailers are first operated by horse power in and out of alleys and then assembled into a train and which is drawn by a truck or tractor.

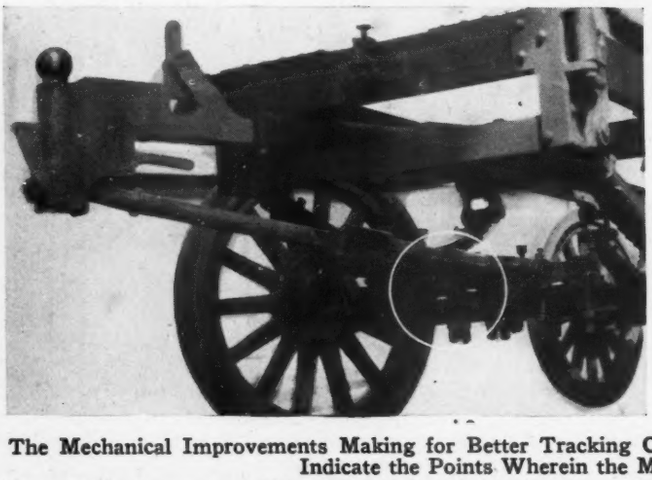
New Heavy-Duty Four-Wheel Truck Trailer Contains Steering Arrangements Said to Preclude All Tracking Difficulties

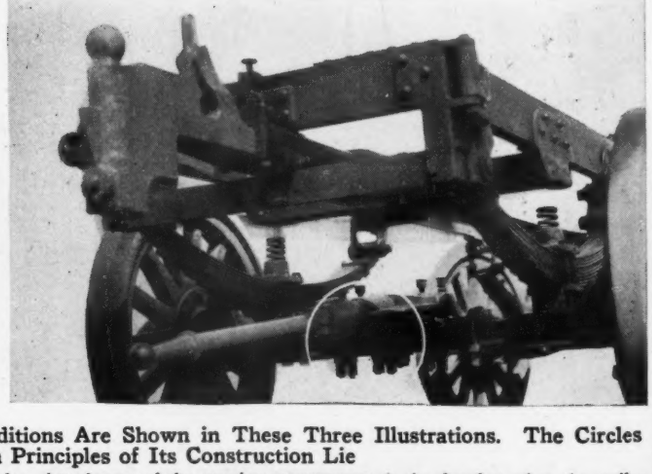
The following are among some of its features: The trailer equipment is interchangeable with other bodies for numerous other uses. Both body and trailer are said to be simply constructed. The body construction is such as to assure complete discharge of load. Either of two bodies may be had, one is of 2½ yd. capacity, and the other is of 3½ yd. capacity. Loading edge from the edge of the former body is 59 in. high, and of the latter it is 62 in. high. When the body is in the dumping position the lower edge of the body is clear of the dumpage. As the body is under the constant control of cables any possibility of the body jumping off the trailer is entirely eliminated. The body can be raised into the dumping position in as short a time as fifty seconds. After dumping, the body automatically returns to its former horizontal position through the action of gravity. Unusual light weight, it is pointed out, is another of its features, also the facility with which the complete outfit can be manipulated in narrow alleys.



The new heavy duty four-wheel truck trailer, which is made in one, two, three and five-ton models, is stated to be the result of experimentation carried over quite a period of time and which is strongly protected by a number of patents. One of the foremost features of this line is the provision of a steering arrangement whereby all trailer tracking difficulties are eliminated. In this arrangement the long leverage of the steering arm is said to guarantee the complete control of the steering mechanism by which control deviation of the trailer from the path of the truck is eliminated.

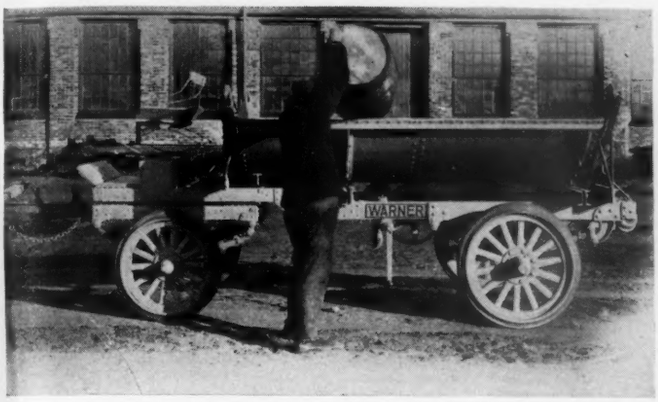
The manufacturer points out that by a radical departure from methods formerly employed in the construction of





The Mechanical Improvements Making for Better Tracking Conditions Are Shown in These Three Illustrations. The Circles Indicate the Points Wherein the Main Principles of Its Construction Lie

Upper Circle: Arrangement which links up the control of both wheels. Left Circle: Attachment of the steering arrangement to the drawbar when the trailer moves forward, the wheels are free to follow unhampered the track of the truck. Right Circle: Position of the steering arrangement when the trailer is prepared for backing, the front wheels are locked parallel to the frame



Views of the New Two-Way Side-Dump Body and Trailer Recently Announced by the Warner Manufacturing Co., Beloit, Wisconsin

its four-wheel trailers the operator of this new outfit will experience a little or no difficulty when operating in tight quarters where access is poor and control difficult. In this construction provision is made for the attachment of the steering arrangement to the drawbar when the trailer is moved forward, and to the axle in a locked central position, when the trailer is moved backward. As this construction eliminates every possibility of knifing when backing up the trailer, especially in cramped quarters, it is patent that the element of damage incident to operation under such conditions is entirely removed.

The backing operation is greatly simplified and can be accomplished with dispatch because of this new method. When backing up the front wheels of the trailer are locked in a permanent position parallel to the frame or at right angles to the axle, while the drawbar is permitted to swing to either side without any danger of damage, as the drawbar is now disconnected from the steering arrangement and receives nothing but the rearward push of the truck. During the backing operation steering is effected by an auxiliary steering bar that is applied to the rear end of the trailer.

In extreme cases, for instance, when the problem exists of moving the trailer around a post, both sets of wheels can be arranged at any angle which will permit the movement of the trailer around any obstacle.

The Warner principle of universal ball and socket joint is maintained in attaching to and detaching from the drawbar or axle.

The general construction of the new Warner four-wheel trailers does not vary from those of earlier production; in fact, when designing the new line the company kept in mind the necessity or desirability of furnishing the older models now in operation with the new parts at a reasonable price, thus enabling the owner to incorporate into them the new features.

Two New Models Added to the Garford Line

NEW achievements in engineering and construction have been scored by the Garford Motor Truck Co., of Lima, Ohio, in its two newest models—a 5-ton worm drive and a 7½-ton chain-drive, which have recently been put on distribution. This company now boosts a complete line of models catering to every demand in hauling. The line also is standardized, all models now being constructed with the engines beneath the hoods instead of under the seats.

It is expected that sales on the 5-ton worm drive will run very heavy, as there is an unusually big market for that particular type of truck. It is designed especially for all kinds of heavy duty hauling.

The model is replete with improvements and new and exclusive features of construction. The worm drive, with clover-leaf suspension rear springs, is a vast improvement over former types of drives. It has eliminated spring breakage and all minor troubles experienced with the old style of drive. The general construction is marked by numerous features indicating splendid advancement made by engineers in devising new ways of building strength and ruggedness into the truck.

Although supreme strength and resistance have been embodied in this new model, it has been equipped with a 5 x 6½-in. Buda motor, with an engine speed of 1000 r.p.m., giving maximum power with low motor speed. Test runs under the most difficult and unusual conditions with the model, prove it capable of running 15 m.p.h. heavily loaded with scarcely more than a purr from the motor. Thus strain on the truck from a racing motor, is entirely avoided. This is a point of noteworthy importance, inasmuch as the Garford Motor Truck Co. always has been unusually successful with its engines.

The model is especially adaptable to excavating heavy dump, heavy coal and heavy loading work. The standard job is equipped with 162-in. wheelbase and accommodates a 13- or 14-ft. body for general heavy-duty cartage. There are two other wheelbases—one of 138 in. and another of 186 in. for extra bodies.

The finishing of the new 7½-ton Garford, a triumph in heavy-duty type, marks the entrance of the Garford Motor Truck Co. into the limited group of manufacturers who turn out heavy-duty trucks. The model retains the Garford chain-drive recognized as being a very high order and is for use anywhere that heavy loads must be handled continuously.

Models of both types were displayed for the first time during the recent Chicago Motor Show at the Coliseum and were the objects of close scrutiny by operators of general utility and heavy-duty units.

Live Stock Transportation by Truck in Illinois

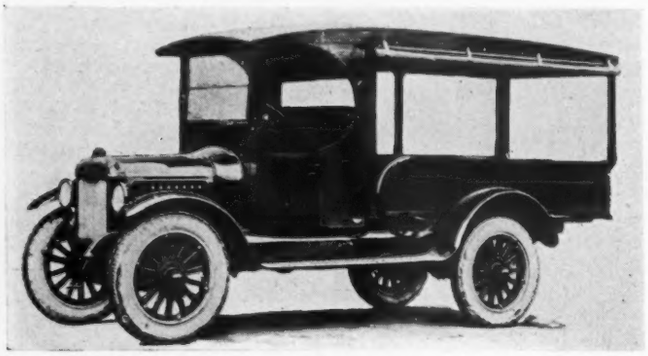
Fifty per cent of the live stock brought into Peoria, Ill., is now handled by motor trucks. John Combs, of Mainito, charges fifty cents per hundred weight for a thirty mile haul. The rate from Mason City, thirty-seven miles, is sixty cents per hundred. Since the concrete roads were opened, the rates have been reduced about fifteen per cent. Farmers who have the advantage of hard roads, can deliver their stock when market conditions are at their best, while those off the hard roads, must wait until their highways are passable. The new hard road between Springfield and Peoria, is carrying a tremendous volume of traffic. During January 18 251 motor cars and 2000 horse-propelled vehicles utilized the new highway past Pekin, in comparison with 7293 motor cars and 2500 horse-propelled vehicles during January one year ago and before the road was completed. More vehicles used the road during January that during last May when traveling was at its height, although the road was not finished.

Ford in New Role

Henry Ford was elected president of the Detroit, Toledo and Ironton railroad to succeed Joseph A. Gordon. This and other important changes in the personnel of the road's management was made at a meeting of the board of directors held here. Complete reorganization of the railroad is planned.

New Model Republic "10-Express"

REPUBLIC Motor Truck Co., Inc., Alma, Michigan, announces its new Model 10 Express, a 1-ton truck on pneumatic tires. This model is of exceptional proportions, and particularly attractive in appearance. It is not of passenger car derivation, but built of proven truck units to meet demand for a delivery truck of heavy construction and sturdiness, yet has ample speed for city and interurban service.



Republic's Latest Job is a Delivery Truck. It is Known as the Model "10-Express."

It is equipped with a Continental Red Seal engine, and its transmission is provided with an unusually low gear ratio in low speed, to assure ample power for starting loads under adverse conditions. The Torbensen internal gear drive rear axle is used.

Pneumatic cord tires, 35 x 5 both front and rear, are standard equipment. The tires are of heavy truck type. The fact that 35 x 5 tires are used throughout, makes it necessary for the owner to carry only one spare tire and rim for emergencies.

This job is equipped with a Delco electric lighting system, the generator being driven direct from the front gear case of engine, no chains being used. Delco electric starting motor is extra equipment at nominal additional cost.

Ignition is obtained through a high tension Bosch magneto, entirely independent of the electric lighting system.

The model is furnished with two styles of express body, either open or canopy-top, an extra tire carrier and rim being included with both styles. The truck is also fitted with full length running boards, connecting front and rear crown fenders. Complete curtain protection is furnished with the enclosed cab and with the canopy top express body. The cab also includes a two-piece adjustable windshield and is fitted with removable side curtains which open with the doors.

High-Speed Hoists

The use of chain hoists in automobile repair shops or garages is a necessity, and the proper selection of a hoist involves an understanding not to be overlooked.

Two types of hoist are found in repair shops, the differential blocks and the high-speed hoists.

In addition to price, two other factors must be duly considered when a new hoist is to be installed. And these are speed, or the number of feet of hand chain that must be overhauled to raise the load a given distance—and force, or the pull in pounds required on the hand chain to raise the weight.

As ordinarily made, the number of feet of hand chain that must be overhauled to lift a given load is about the same with both hoists. And, as the differential pulley block is the cheaper of the two, it evidently is the question of least force, or the effort exerted on the hand chain, that will establish the basis of choice between the two.

These are the facts. With a ½-ton high-speed hoist a pull of 60 lb. only must be exerted as against a pull of 120 lb. with the differential pulley block; with the 1-ton high-speed hoist, a pull of 80 lb. only must be exerted as against a pull of 218 lb. with the differential block; and with the 2-ton high-speed hoist a pull of 120 lb. is exerted as against 306 lb. with the pulley block.

Thus, it is evident, the problem reduces to one of labor versus price. From two to three times as much effort must be exerted to lift a load with the one over the other.

The high-speed hoist is considered by far the cheapest on account of the fact that it saves human effort.

Giant Easy Lift Side Hoist

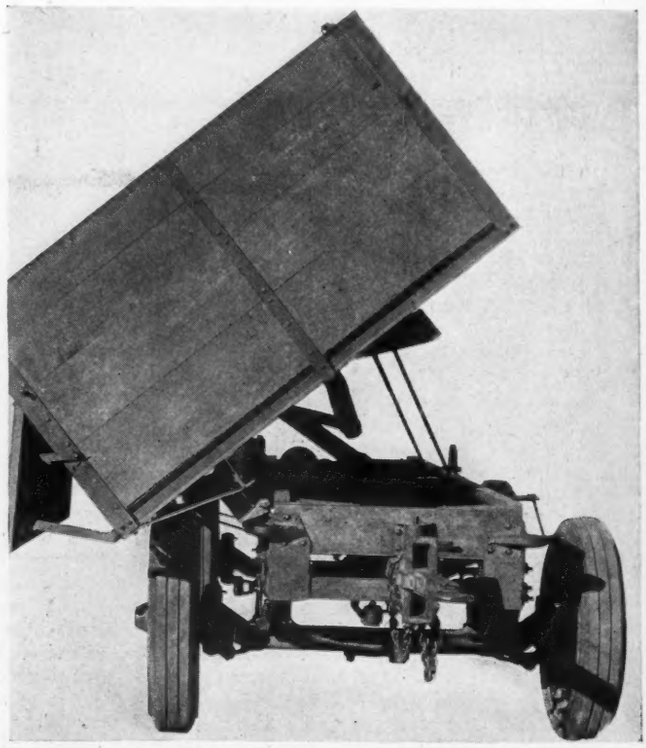
Investigation has convinced the Auto Truck Service Co., Inc., 946 Third St., Milwaukee, Wis., of many instances where a rear hoist is distinctly impractical and can be taken care of satisfactorily only through the use of side hoists. Therefore, this company has put on the market a side hoist that embodies the same principles incorporated in its rear hoist job.

The Giant Easy Lift Side Hoist as well as the Giant Easy Lift Rear Hoist is built to fit any make of truck, tractor or trailer, hand or power driven, in any capacity from 1 to 10 tons.

One of the advantages of side dumping is the fact that no backing is required, thereby saving both fuel and time. Side dumping units can be driven along the side of dumping and unloaded without obstructing traffic. The value of side dumping units when used in connection with a train of truck and trailers is appreciable and needs no further explanation.

This unit can be easily attached. It is fastened with U bolts and no drilling of the frame is necessary. Every available bit of space making up the load carrying part of the chassis is utilized, no space being sacrificed between the driver's seat and body. The mechanism and its operation is simple. Its main parts consist of two grooved winding drums, two cables and two side vertical lift arms fastened to the body.

The mechanical operation is as follows: After the vertical arms have brought the load over the first center, the side arms carry the balance to its height. Two heavy hinges are fastened to the body and pivoted to the frame, thus carrying the body outwardly and lifting the opposite side to clear the wheels after the load is discharged. The lift can be stopped at point of its travel and it is lowered by gravity fixed with brake.



The Angle at Which the Giant Easy Lift Side Hoist Lifts
Note the wheel clearance of a 7½-ft. span, giving the highest degree possible for dumping

TRUCK EQUIPMENT AND APPLIANCES

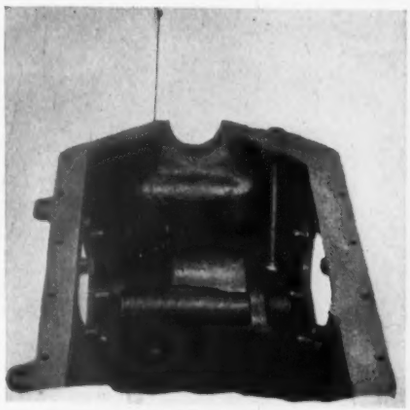
Latest Climax Engine Has Many Improvements

THE new Climax TU engine, which has a bore and stroke of 5½ x 7 in., respectively, is the latest product of the Climax Engineering Co., Clinton, Iowa. It is a large powerful heavy duty engine and is designed for service when severe conditions must be met and the greatest amount of work accomplished with the least expense. This job is designed to cover both the truck and tractor field.

Many features of the new model are similar to those of the smaller Model K made by the same company. To these features have been added several others.

The gear-driven fan has been worked out along improved lines. The final drive to the fan blades is through a friction which prevents shocks and jars to the fan resulting from sudden starting and stopping of the engine. The friction drive is controlled by spring action so that it needs no take-up adjustment. The fan spindle itself is mounted on radial ball bearings which take the thrust load of the fan as well as the radial load. The gears driving the fan originate in the regular train of gears for operating the camshaft. The pinion on the fan spindle is hardened steel and the main drive gear on the crankshaft is also steel. The other gears are semi-steel, 1¼-in. face, and 10-in. pitch. All the gears are inclosed and thoroughly lubricated.

A Sylphon thermostatic regulator, which is incorporated in the design of the engine itself, permits the maximum of allowable temperature in the jacket water. The thermostatic element is located in



Position of the Cylindrical Oil Strainer in the Sump of the Climax Engine, and the Fuel Gage Extending Up

the water outlet manifold. When the engine is cold, as when starting, it causes the water to by-pass directly back to the water pump, none of it circulating through the radiator until the temperature of the water reaches the predetermined point, when it closes the by-pass, permitting the usual circulation through the radiator to take place. This action is entirely automatic.

Provision is made by a standard No. 1 S. A. E. generator flange for the attachment of a gear-driven lighting generator, if such is desired.

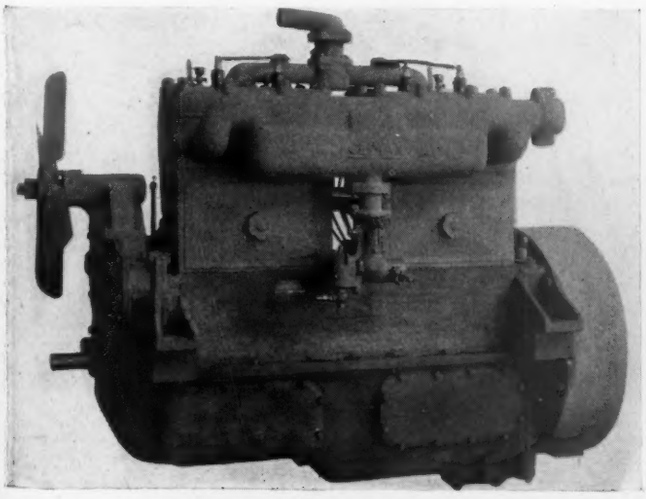
The mounting of the water pump is changed somewhat from the previous model, as it is bolted against the rear side of the gear case, centering therein. At the forward end of the pump shaft is a high grade ball bearing.

The governor is built in as part of the engine. The governor housing is connected by a large passage with the interior of the crankcase, and a breather with a light valve is placed on top of the governor casing. This insures an oil mist surrounding all the governor parts.

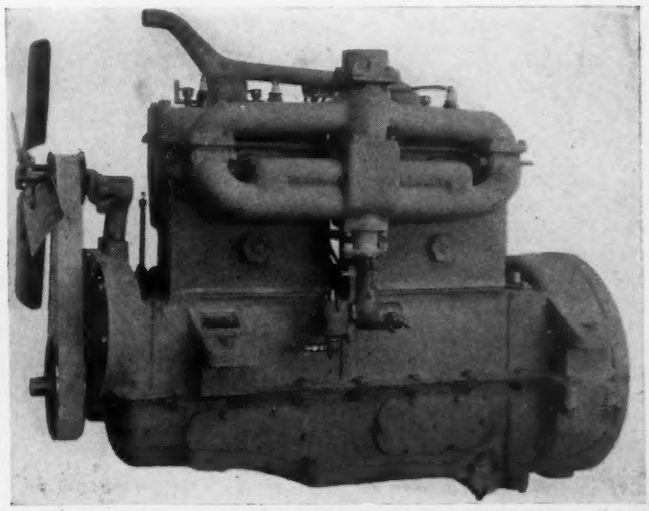
The oil filler is incorporated in the cover of the governor housing so that when fresh oil is poured in, the principal parts of the governor are thoroughly bathed in oil. The bell housing in this model is made a separate ring casting instead of being cast as a part of the crankcase and oil pan. This facilitates assembling and makes it possible for the bell at the front of the transmission to be continued over the flywheel, thus eliminating this ring entirely.

All other features of the engine are identical with those previously used and may be described as follows: The oiling system is of the pressure circulating type, without splash. The oil reservoir has a capacity for 3 gal. of oil and is provided with baffles and check valves so that even if the supply of oil is diminished, sufficient amount is held at the rear end of engine when going down hill to give a plentiful supply to the oil pump.

The oil strainer is perforated sheet brass. It is cylindrical in shape and reinforced by a ⅜-in. rod running its entire length through the center. The total area of the strainer surface is 40 sq. in., which makes frequent cleaning unnecessary. However, the strainer unit may



Model TU Climax Engine, Which Has a Bore and Stroke of Five and a Half Inches and Seven Inches, Respectively



Carburetor Side of the Climax Model KU Five by Six and a Half Inch Engine With K317 Manifold

be instantly removed from the outside of the engine by taking out three cap screws.

The oil pump is of the vane type. The passage from the oil strainer to the oil pump is cored in the solid casting.

Drilled holes, 5/16 in. diam., are used for the oil passages instead of pipes and light threaded fittings bolted on. All these holes are drilled in solid metal. They are closed by pipe plugs with screwdriver slots so that if it is ever necessary to clean them out the plugs may be removed and the passages thoroughly cleaned.

A liberal excess of oil is supplied to all bearings and the excess thrown off the crank pins lubricates the cylinder walls and the upper end of connecting rod.

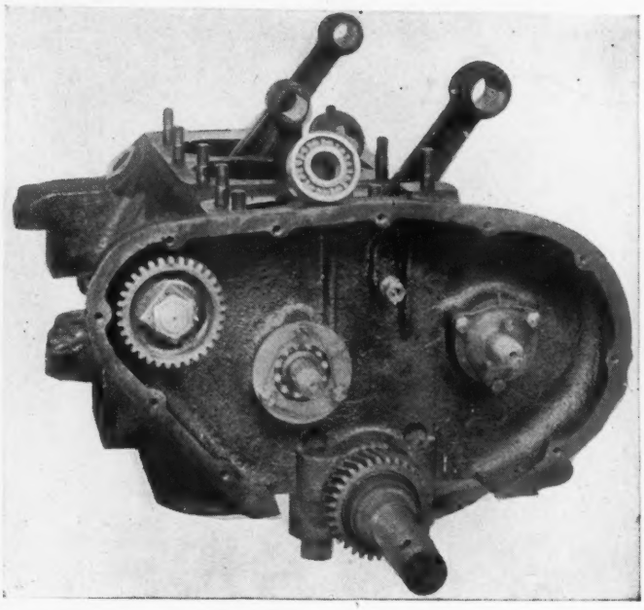
There is an indicator to show the circulation of the oil when the engine is running. This is at the front end and is in the form of a small ball which lifts when the oil is circulating, and drops when the system fails. Another gage shows the amount of oil in the reservoir.

The idler-gear attachment is considered novel. It is keyed to a shaft which runs in a radial ball bearing almost directly under the gear itself.

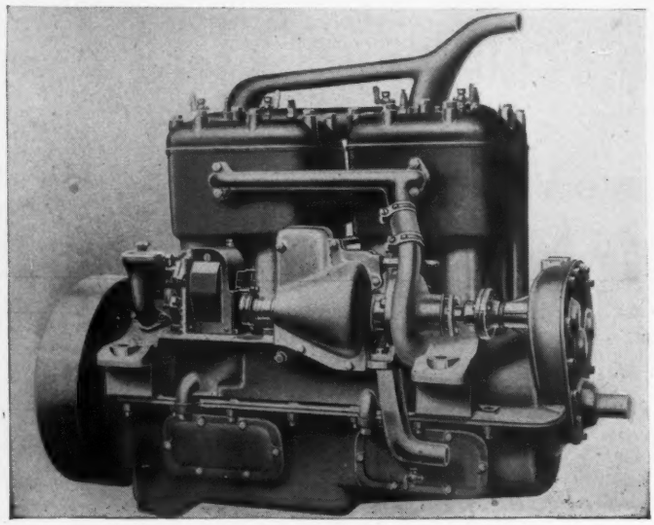
Felt rings are used outside the end main bearings as an additional precaution in the designer's effort to make the engine entirely dust-proof. The covers over the valve stems are lined with a felt strip. There are many other details of importance in making the engine dust-proof.

Both types of Climax engines have been designed for efficient operation on kerosene. The water jackets are large, and there is special provision for cooling the head of the piston. A very late design of manifold is used.

Climax engines are designed strictly for trucks, tractors and general heavy duty service. They are now built in two sizes, as follows: Model K, open-flywheel type, 5 x 6½ in., rated at 35 B. hp. at 850 r.p.m.; and Model KU, inclosed-flywheel type, 5 x 6½ in.; Model T, open-flywheel type, 5½ x 7 in., rated at 44 B. hp. at 800 r.p.m.; and Model TU, the same size as Model T, but with closed flywheel.



Close-up of the Front End of the Crankcase Assembly of Model K Climax Engine.



Magneto Side of Climax Model K Engine.

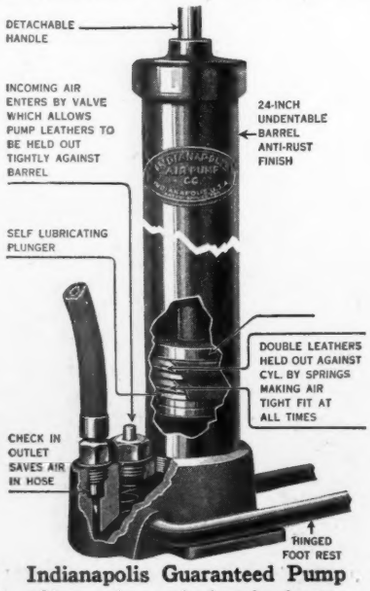
Indianapolis Guaranteed Pump

As the most important part of an air pump is the plunger or the part that compresses and forces the air out of the barrel and into the hose, it has been particularly emphasized by the Indianapolis Air Pump Co., Indianapolis, Ind., in the construction of its pump, the Indianapolis Guaranteed Pump.

Two leathers are incorporated in the plunger of this pump, which, it is pointed out, will give it double air-holding surface. Beneath each of these leathers are machine-turned metal washers, which are stated to assume 90 per cent of the strain of the compressed air. The leathers are held snugly against the inner surface of the barrel by expansion springs which are inserted between the leathers and the washers. In addition to this function these springs take up any wear. The plunger is packed with graphite which softens the leathers and lubricates the inner wall of the barrel.

A mechanical or automatic air intake valve in the base of the pump opens on the up-stroke of the plunger, allowing one chamber to be completely filled with a fresh supply of air and closes when the plunger reaches the top and remains in the closed position until the down-stroke is completed.

A positive air check is provided in the hose connections and the unions are air-tight, being packed with gaskets. The barrel, which is long and small diameter, is of 18-gage steel and is either finished in nickel or baked enamel. The foot is hinged so as to permit a comfortable angle when pumping. The handle, which is sturdy and detachable, is held by a special lug casting threaded to the plunger rod.



Indianapolis Guaranteed Pump
Observe the two leathers in plunger

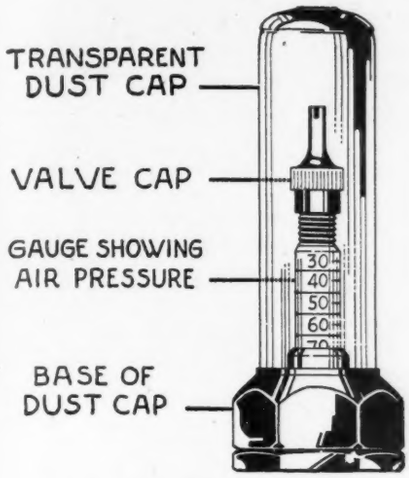
Gilmer Fan Belts

L. H. Gilmer Co., Tacony, Philadelphia, Pa., is at the present time producing Gilmer fan belts for trucks in 70 sizes. The tractor fan belt line includes 23 different sizes. These belts are wrapped individually and packed in cartons, but are not marketed in cartons. The tractor belts are mounted on sticks and also wrapped individually and packed in cartons.

The individual wrapping which is now given belts protects them from shop wear and also makes them up in an attractive manner for counter or window display. The wrappers contain the group number of the belt, the make and model of the truck or car which the belt will fit. It also contains instruction for attaching it.

Combination Tire Valve and Pressure Gage

It is claimed that 90 per cent of premature tire troubles and the loss of a third of the life of a tire casing are directly attributable to under-inflation, yet it is almost impossible to make drivers of



Showing Principles of the Currie Tireometer

pneumatic tire equipped trucks reinflate tires half frequently enough. This probably is due to the fact that truck pneumatics, especially the cord type, can be badly under-flated and still appear to have ample air pressure.

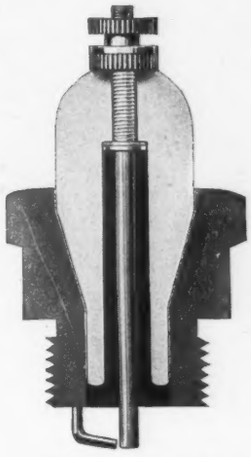
Employment of a new device, a tube which is now being marketed by the Currie Bros. Co., Atlanta, Ga., is said to eliminate this evil by taking all the guess out of the inflation pressures that seemingly are satisfactory. This device is known as the Tirometer. It may be readily substituted for the ordinary tire valve, as it functions as a combination air valve and air pressure gage. From the various graduations on the body of this tube exact air pressure within the tire can be quickly and accurately determined.

This device is protected from oil, dirt, etc., by a transparent, severe duty dust cap which does not interfere with the instant reading of the air gage.

The tube is of pure gum of full laminated construction and contains a special preservative that is said to assure endurance and resistance against heat. It is made in both red and gray up to and including the 37 x 5 size. The larger sizes, which run up to the requirements of a 40 x 8 tube, is produced in red only.

Dico Spark Plug

Simplified construction is the feature of the Dico spark plug. It is manufactured by the Dayton Ignition Co., Inc., 722-23 Lindsey Bldg., Dayton, Ohio. The thick porcelain of this plug in connection with the dead air space running to a point above the top of the shell is claimed to increase radiation of heat. The dead air space encircles the center electrode to a point above the top of the shell, a condition that is conducive to an effective radiation of heat from both inside and out. As the construction of the plug is compression tight it is capable of resisting high pressures and leakage of oil. The cement, flowed in between the porcelain and steel shell from the top of the shell to the bottom of the porcelain, also assures a tight assembly. The center electrode is of Monel metal, an alloyed composition, claimed not to pit or burn off, and the small electrode is of nickel alloy. Sells at $1 each.



Dico Spark Plug

The features of this plug are the simple construction, use of the "775" for porcelain and the dead air space

New Ray Battery

The new Ray storage battery is now being produced in large quantities in the new plant of the Ray Battery Co., Ypsilanti, Mich.

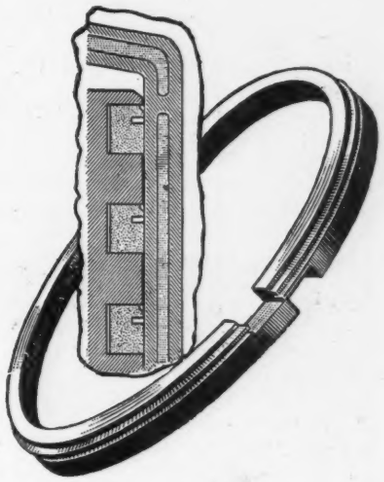
One of the features of the battery are its plates which are claimed to maintain the usual toughness of Ray plates, but with a higher degree of porosity. They are known as the "Lavier Formula" plates and have been designed to reduce harmful sulphation, breakage, washing down, etc., without sacrificing high battery efficiency.

Other than the plates, the construction of the battery is conventional. The lead parts are large, withstanding vibration and they are carefully cast. The separators are also carefully selected and treated, and the grids are hand-filled. This battery is guaranteed by the maker for two years.

New Ray Battery

Universal One-Piece Piston Ring

The Universal One-Piece piston ring is claimed by the Universal Machine Co., 501 E. Preston St., Baltimore, Md., to contain features that will keep down the oil, minimize carbon trouble, increase



Universal One-Piece Piston Ring

power and also reduce oil and gasoline consumption per mile.

The feature in its construction is the upper beveled edge of the ring and the oil groove directly beneath it. On the compression stroke the beveled edge or upper groove collects the oil and forces it downward into the inner groove. This action assists in making a gas-tight seal, also preventing oil from getting into the combustion chamber. Besides, as the piston travels down the oil locked in the groove lubricates the side wall.

The rings are cast iron, concentric, step joint lap, perfectly round and machined.

Eco Numethod Piston Rings

The Eco Mfg. Co., 53 State St., Boston, Mass., is manufacturing a one-piece piston ring, machined from individual grey iron castings of high tensile strength and durable wearing qualities. This ring is known to the trade as the Numethod concentric ring.

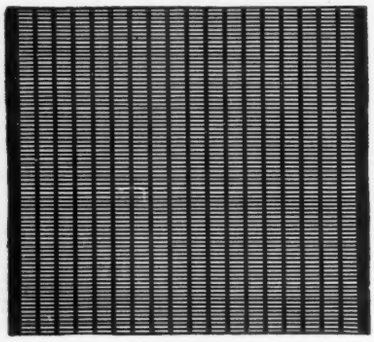
They are cut diagonally or step; the step cut rings have long step laps. Several patented devices are employed in the manufacture of these rings. By the employment of these devices three important features are obtained in the manufacture of these rings. First, they are made concentric; second, a sufficient or uniform amount of tension is obtained without distortion, and third, the rings are made to close into a true circle, giving perfect bearing against cylinder walls at all points.

Examination of these rings disclose that curvature of wall varies when it is open, the curvature of wall near the slot being of a smaller radius than the curvature of the wall opposite slot. This curvature is said to be entirely the result of the patented fixtures employed in the piston rings' manufacture.

New Feature of Diamond Grid Battery

Due to a new feature incorporated in the Diamond Grid Battery, put out by the Philadelphia Storage Battery Co., Philadelphia, this company is now guaranteeing it for two years instead of 18 months as formerly. This new feature is a new part incorporated in the battery. It is known as Philco Retaining Wall, and is said to increase the longevity of this battery.

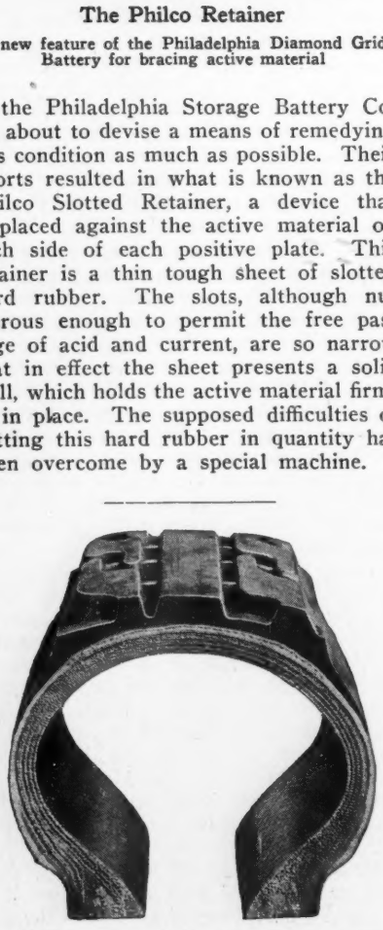
Working on the knowledge that the positive plates of a battery in service tend to shed their active material and also that the faster this occurs the quicker the battery wears out, the engineers



The Philco Retainer

A new feature of the Philadelphia Diamond Grid Battery for bracing active material

of the Philadelphia Storage Battery Co. set about to devise a means of remedying this condition as much as possible. Their efforts resulted in what is known as the Philco Slotted Retainer, a device that is placed against the active material on each side of each positive plate. This retainer is a thin tough sheet of slotted hard rubber. The slots, although numerous enough to permit the free passage of acid and current, are so narrow that in effect the sheet presents a solid wall, which holds the active material firmly in place. The supposed difficulties of cutting this hard rubber in quantity has been overcome by a special machine.

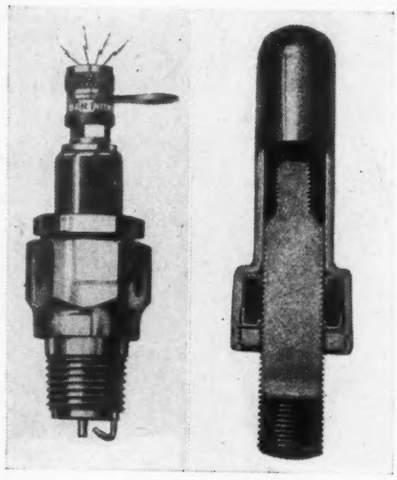


Cross Section of New Syra-Cord Tire

Construction of pneumatic tires of the larger sizes for use on trucks is now well under way at the Syra-Cord plant at Syracuse, N. Y. The 36 x 6 shown here, like the other Syra-Cord truck pneumatics, is built with a broad, heavy tread to furnish maximum traction.

B. & N. Spark Intensifier

The B. & N. Spark Intensifier, produced by the Accesso Mfg. Co., 99 State St., Boston, Mass., is designed to be attached directly on top of a spark plug.



B. & N. Spark Intensifier and the Lox-on Dust Cap

Its most prominent feature is the fact that the spark is clearly visible. It is claimed by the manufacturer that this intensifier will create a more intensive spark at the spark plug points. It retails at 50c.

Piston Pins Packed in a Way to Aid Retailers

A new method of packing piston pins has been devised by the Burgess-Norton Mfg. Co., of Geneva, Ill., whereby a set of pins can be sold by the dealer without splitting a carton. This method is to pack a set of four, six, eight or twelve piston pins in an individual carton, according to the number and make of truck for which the pins are intended. Each individual carton is marked according to the contents, and a number of cartons are packed in a larger carton for the convenience of the jobber. Each pin in the carton is painted upon one end to indicate size—green for standard size, yellow for .003 oversize, red for .005 oversize, blue for .010 oversize and white for all odd sizes. The value of this method of marking can easily be appreciated.

The main reason for this revolutionary method of packing is that of convenience. When the dealer is to overhaul a car it will probably need a complete set of new piston pins, one for each cylinder. Instead of having to break up a carton containing one or two dozen he can take a brand new carton from his stock and use the entire carton. In this way the preservation of the pins remaining in stock is made much more simple, as the protective coating of oil on each pin is liable to be removed in taking pins from a large carton. Not only that, but a dealer can more easily check up on his stock when he does not have to open cartons and count the contents. A glance will tell him what pins he has on hand.

Goodrich Silvertown Fan Belt

The new Goodrich Silvertown fan belt is the latest product of the B. F. Goodrich Rubber Co., Akron, O. It is called Silvertown because it is made on the same principles which characterize the Silvertown cord tire.

This belt is made in two styles, the "V" belt of heavy cord for use on such cars as Pierce-Arrow, Packard and Oldsmobile, etc., and the "flat" type, made specially for the Ford, Dodge, Maxwell, etc.

The body is of cotton cords, permeated with rubber solution and surrounded by

New Goodrich Silvertown Fan Belt

It is made on the same principles which characterize the Silvertown Cord Tire

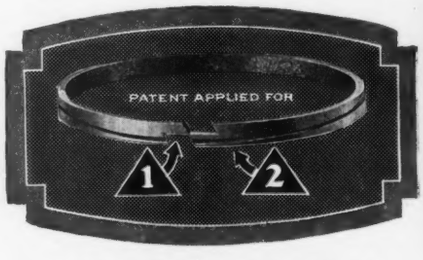
a rubber cushion. This rubber belt with its backbone and sinew of strong cotton cords is claimed to contain the proper elasticity and firm grip necessary to enable it to withstand the gruelling service.

New Ring With Spiral Groove and Combination Joint

One of the latest rings to be introduced to the trade is the General Lightning-Cut, marketed by the General Utility Co., 1326 Ogden St., Phila., Pa., and is featured by a spirally cut or wandering groove and slot, which is a combination of a diagonal and step cut.

It is a concentric ring, individually cast of fine grey iron. The oil groove has been designed to properly lubricate the ring so that friction and heat would have no effect. It also scrapes excess oil from the walls on the down stroke.

This ring is made in many standard sizes and in oversizes up to .3125. It is made for replacement purposes only.



General Lightning-Cut Ring

The feature of this piston ring is the combination diagonal and step cut lock and the spiral groove, which is so cut that oil is returned to the crankcase.

SERVICE AND REPAIR DEPARTMENTS

Conducted by C. P. SHATTUCK

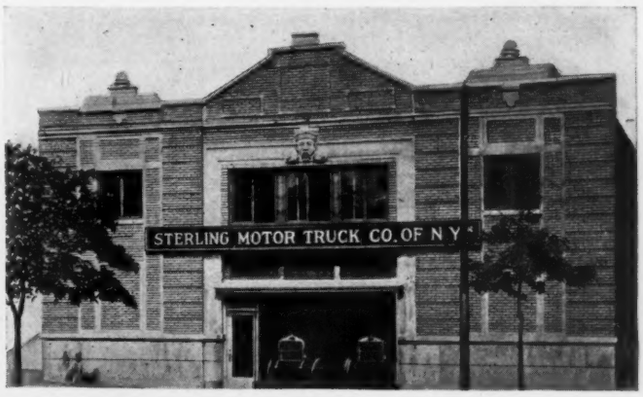
Here's Proof That the Dealer's Service Station DOES PAY

But It Has to be Run Intelligently. Read How This Dealer Handles His Sales Force. Some Excellent Ideas for the Dealer Who Wants to Put His Service Department on a Sound Footing

ASK the average truck dealer if he is making any money in his service station and he will say no. And he is quite likely to emphasize the no. Reproduced in type the negative reply would be thus: **No!!!** If the dealer is questioned as to the reason why he does not make a profit he may retort with a snappy "How do you get that way?"

There appears to be many reasons why service is not a paying investment. Many explanations are made and these have as many angles to them as a porcupine has quills before he is disturbed. I have been informed so many times that service departments cannot be conducted other than at a loss or at most—break even—that, did I not hold to the contrary, I would have accepted conditions as they are. There are several reasons why a service station does not pay its overhead and in a future article the writer proposes to give the causes and a very simple remedy. It is being done and it can be done without passing the burden along to the truck owner.

It is generally conceded that the overhead in the large cities is so great that giving proper service results in a loss; in fact, many dealers accept the condition as such. New York City is an example. Here the cost per square foot for floor space is high, as is labor and other items. If the dealer maintains a show room on automobile row his sales expenses are greatly increased, and due to the tendency of the big city dealer to make the service department share a proportion of the sales expense, we have one reason



The Headquarters of the Sterling Motor Truck Co. is Shown at the Top; the Newark Branch at the Right; and the Brooklyn at the Left

The Brooklyn and Newark branches are conducted under the same policies as at headquarters. The top illustration also shows the fleet of service trucks, ranging in capacity from ¾ to 7 tons, operated by this company. Night service, including road, is rendered; thus service and parts are assured to all customers 24 hours a day

why the repair department is not profitable.

The writer spent several days in New York City recently investigating service stations. There are, it is said, between 75 and 90 truck dealers in this city, but the number maintaining a service station is considerably less. Many "truck dealers" shunt their customers to some repair shop. This is done because the attractive prices made by these dealers, either in the form of a discount or trade-in, do not permit of stocking spare parts, let alone equipping a service station. This type of dealer is the result of the anxiety of some manufacturers to be "represented" in New York.

Is Making Real Money

It was not until the third day that the writer found a dealer in the type he desired—one that was conducting a service station at a profit. This dealer is the Sterling Motor Truck Co., of N. Y., Inc., located at 652 West 132nd Street, and when I presented my card to the telephone girl I was greeted courteously and was quickly ushered into the office of the president, W. P. Held. I asked him the usual question, "Did his service station pay a profit?" In reply Mr. Held drew some papers from a desk drawer and passed them over, calling attention to a statement prepared by his cost accountant. The figures showed that beginning with 1915 that the **service and stock room had made real money.** I wish I might publish the figures for the benefit of those dealers who believe that the service department cannot be made to pay or that it cannot be made to break even. In 1915 the company made a profit of four figures, net profit. At the end of the fiscal year in 1916 the profits were increased over those of the previous year by 361 per cent. The increase for 1917, 1918 and 1919 were 534, 545 and 799 per cent, respectively, over the first year mentioned. Those for 1920, but not completed at the time of my visit, bid fair to equal those of the preceding year, which were represented in five figures.

Mr. Held explained that previous to 1915 it was a different story, that one year showed a loss of five figures, so I asked him how the change was brought about. In reply he said that previous to assuming his position in New York and engaging in the merchandising of truck that he had been an accountant in a western city for about 18 years. **And being an accountant he applied the business principles of cost accounting to truck selling and service.** And when you come to think it over, isn't it sound business to actually know the real costs of conducting any business? And doesn't it make for better selling to know the actual costs of sales? The writer hazards the opinion that there would be less failures among truck dealers if they knew their actual costs and real net profits.

Some of the Forms Which Constitute System

Above: The repair card made out by tester after testing out truck on road. Center: The production order, made in duplicate, and an authorization for work. Below: The Calculagraph time card which is filled out by tool room clerk.

Know Your Business as This Man

Being an accountant Mr. Held naturally selected an accountant for one of his officers, N. W. Kraemer, to whom I was introduced after I had inspected the service station and talked with the service manager, Mr. Ernst. Mr. Kraemer differs from the usual accountant in that he has a knowledge of the automotive industry. If you talk timing magnetos and engines with Mr. Kraemer you will discover he knows how it is done. Similarly he has a knowledge of the problems of the repair shop and an insight on its human equation, the mechanic. I mention these factors to show that Mr. Kraemer is not a human adding machine only.

If the reader will study the cost journal sheet produced herein he will obtain the answer why the service station is making a profit. The sheet has to do with the costs for the month and is not complicated. The entering of cost items under various heads shows the close relation of service to sales and there are different classifications of the costs having to do with the new truck or the rebuilt or repaired truck taken as part payment for a new one. By charging against the new truck all costs having to do with preparing it for delivery as well as making the sale, **the real, actual profit per truck is known.** It is explained that the system provides for charging against the truck sales all costs and **crediting repair department with all labor, material, etc.,** necessary to the sale. In other words, the service station is not required to stand the expense that rightfully should be charged against the sales department.

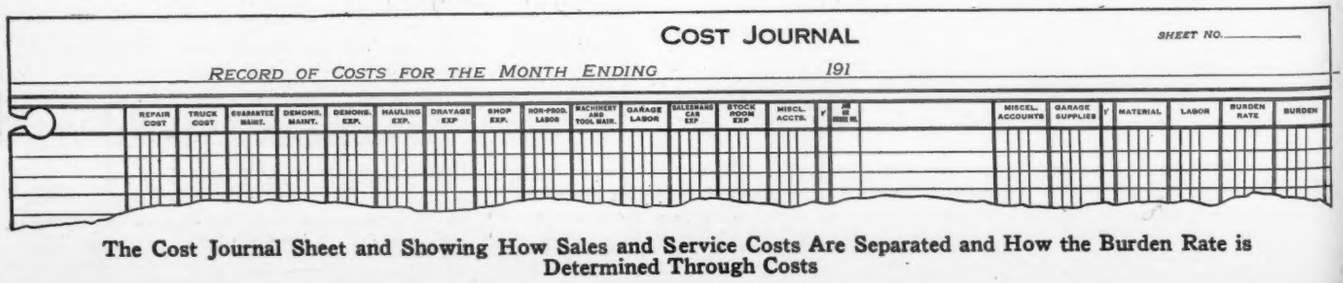
Why Mechanics Fail to Enthuse

It may be argued that the results will be the same, the net profit, but the results are not the same because if the service department heads are constantly reminded that their efforts are not productive of a profit or loss, what incentive have they to become more efficient? We hear much at service association meetings and conventions of the necessity of making the mechanic more efficient, of being more productive, of the need of developing a higher grade of workmen, but I hazard the opinion that, being reminded that the repair department is a necessary evil, breaks down the morale of the mechanics.

The sheet also shows a column for shop expense. Against the service station or repair department is charged its proportionate share of the rental (figured on the basis of square foot of space), light, heat, power, insurance, etc. Interest on the investment in machinery, tools and equipment is also charged as well as new equipment and the cost of maintaining or repairing the old. Provision is made for non-productive labor. The same methods are applied to the stock room, which is located on the repair shop floor.

Knowing the exact costs of the repair department and stock room, and these are credited with labor and material sold, it is a simple matter to arrive at the bur-

(*Continued on page 78*)

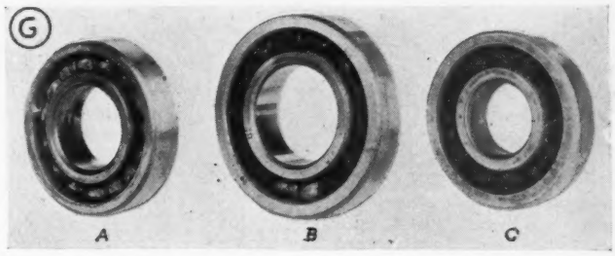


The Cost Journal Sheet and Showing How Sales and Service Costs Are Separated and How the Burden Rate is Determined Through Costs

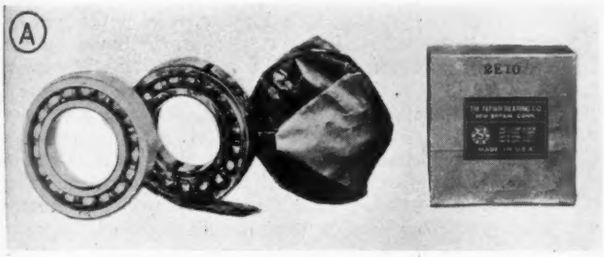
Carelessness and Neglect of Lubrication Are the Chief Enemies of Ball Bearings

Here Are Some Things the Repairman Should Observe When Handling Ball Bearing Repairs. Recommendations Made by the Fafnir Bearings Company

THE following are the factory-approved methods of cleaning, lubricating, removing, replacing, etc.—the Fafnir ball bearings made by the Fafnir Bearing Company, New Britain, Conn. The discussion deals with the use of the bearings in commercial cars of all load ratings. Instructions are given, supplemented with illustrations to show how to correctly determine replacements. The failure of bearings, due to lack of, or improper lubrication, use of improper tools and other abuses, is described and illustrated. It is not the purpose of this article to present in detail the various types of bearings and their application but rather to point out to the mechanics of the truck dealer's service station the need of properly caring for the bearings in their application. The Fafnir ball bearings discussed are: The single and double-row radial types and single and double-row angular contact (radial-thrust) designs.



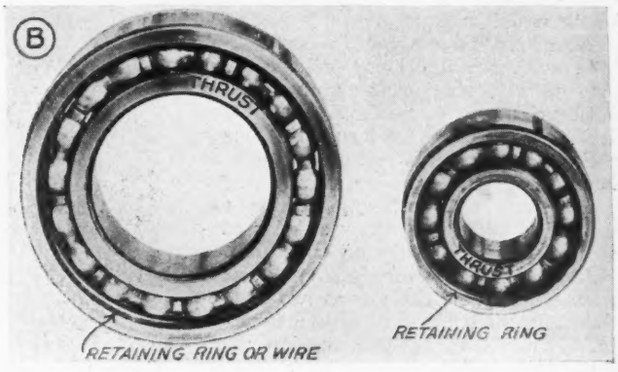
Some Samples of Abused and Neglected Ball Bearings.
A, rust created by water and resulting in pitting of the highly finished surfaces of balls and raceways; B, lack of proper lubrication causing burnishing of balls and raceways sometimes sufficient to draw temper of steel; C, dirt causing wear and short life or service.



Fafnir Ball Bearings Come in Sealed Packages Guaranteeing Buyer Against Dirt or Rust.
Illustration from left to right shows bearing, dipped in lubricant, wrapped in oiled paper and the sealed container.

Classification of Loads

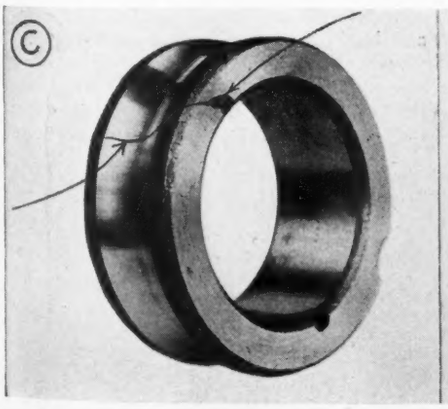
Loads may be classified as radial, thrust and angular. An example of the application of a radial ball bearing, in which the load line is at right angles to the axis of the shaft, is shown in the application of two single-row Fafnir radial ball bearings to the front wheel hub. **(See Fig. 1.)** Here the inner ring of the inside bearing is retained securely against the spacing member by a lock nut. Because the outer ring of the inner bearing is mounted between shoulders, the bearing cares for end thrust in either direction in addition to taking the radial load. The outside bearing carries a radial load only. From this it will be seen that while the radial bearings are designed primarily to carry radial loads they are capable of taking a certain percentage of end thrust.



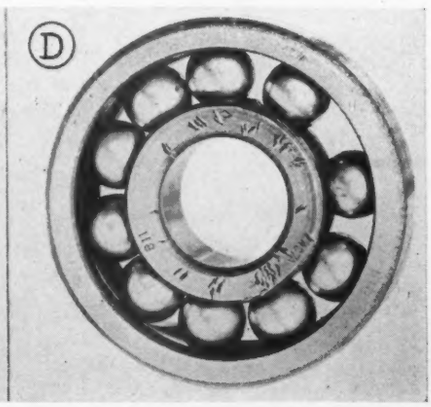
The Radial-Thrust Bearing Has a Retaining Wire or Ring
The faces of the inner and outer rings against which thrust load is to be taken are clearly stamped "Thrust."

Semi-Floating Rear Axle Application

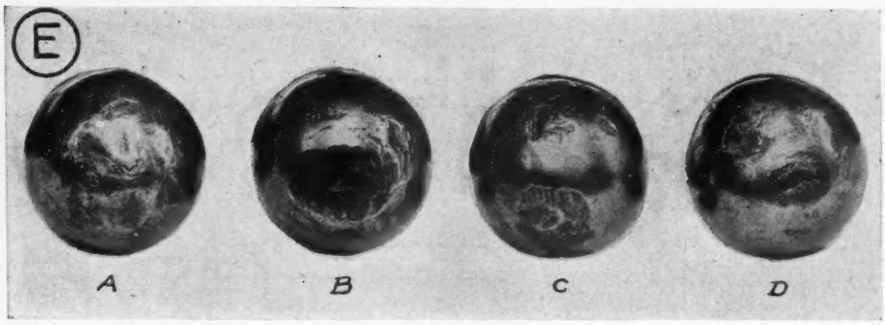
Fig. 3 shows the application of a heavy series Fafnir radial ball bearing at the wheel end of a semi-floating truck axle. The inner ring of the bearing, which is a press fit on the shaft and revolves with it, is securely held between a shoulder of the shaft and the wheel hub. The wheel is keyed to the shaft. The outer ring of the bearing is mounted between shoulders in the housing. The bearing carries the radial load due to the weight of the truck. It also prevents end motion of the shaft, and cares for the thrust load produced by skidding. The application of a double-



Effect of Forcing Inner Ring on an Over-Sized Shaft
Note the break in ring and crack extending across raceway, the result of careless installation



The Result of Driving on Ring With Metal Tools
The additional damage to the balls and raceways through abuse of this nature cannot be illustrated by photographs



Some Common Abuses or Improper Care of Ball Bearings in Trucks
A, badly pitted balls due to acid in lubricant; B, effect of rust on ball, inner and outer ring raceways; C, result of improper mounting of bearing on shaft, causing high overload; D, lack of lubricant

row Fafnir radial bearing on the wheel end of a semi-floating heavy truck axle is shown at **Fig. 2.**

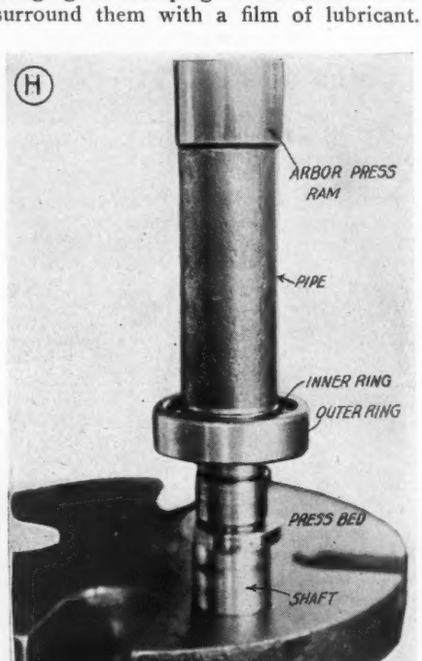
Worm Shaft Mounting

Fafnir radial-thrust ball bearings, both single and double-row, are designed to carry combined radial and thrust loads in any given proportion, provided that the total in any given instance does not exceed the rated capacity of the bearing. The application of the double-row angular contact ball bearing in worm shaft mounting is shown in **Fig. 5.** Here the bearing cares for thrust loads in either direction as well as supports one end of the shaft radially. The other bearing carries a radial load only. Another application is shown in **Fig. 4.** Here there is a double-acting thrust ball bearing caring for the entire thrust load and in both directions. Two single-row radial ball bearings care for the radial load.

A conventional method of mounting the differential, worm gear or bevel ring gear, is to utilize a single-row angular contact ball bearing on either side of the differential so as to care for the thrust of the gear in either direction. With lighter trucks or those employing a bevel gear rear axle the pinion shaft may be supported at the pinion end by a double row angular contact ball bearing and the other end of the shaft by a single-row radial ball bearing. Another design is the use of two single-row radial ball bearings with the pinion shaft. One is mounted on the inner end of the shaft and serves as a pilot bearing carrying radial load only. The other bearing is locked between shoulders and in addition to carrying the radial load takes the thrust of the pinion. Ball bearings are employed in the clutch, transmission and fan, the bearings being applied to care for radial and thrust loads. As the application varies space will not permit of discussion.

Construction of Fafnir Bearings

Accompanying illustrations show the construction of the Fafnir ball bearings of the types employed in trucks. There are four general components, namely, the outer ring, balls, separator and inner ring. The material from which the rings are machined is high carbon chrome alloy steel. After heat treatment the rings are accurately ground and polished, and certain components are ground to one ten-thousandth of an inch of the standard size. The balls are of high carbon alloy steel and must pass a rigid inspection for uniform size, sphericity, strength and finish. The function of the separator is to prevent wedging or cramping of the balls and to surround them with a film of lubricant.



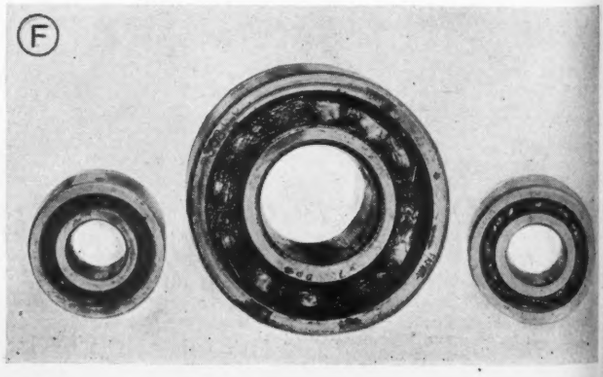
Correct Method of Pressing Ball Bearings on Shaft With Arbor Press
Start the inner ring square with the shaft and apply pressure against the inner ring only

The separator practically floats. A particular feature of the Fafnir separator is that it guides balls at their rolling axis and, in this way, prevents spinning.

Before discussing the proper methods of removing and replacing the various types of bearings, attention is directed to illustrations C and D, photographs taken by the writer, showing a common cause of bearing failure through abuse. That at C illustrates the result of a mechanic attempting to force the inner ring on an oversize shaft and driving it with a punch or drift. The result is that the ring cracked and so expanded that the balls were compressed between the inner and outer races, resulting in extreme friction, heating and noise, and ultimate destruction of the balls. Illustration D shows the effects of driving in the bearing with a blunt cold chisel—the photograph does not reveal the actual damage, however. The balls and races of this bearing, which was returned for an adjustment, when inspected showed that the inner ring was badly sprung, causing the balls to be alternately cramped and loose. BALL BEARINGS SHOULD NEVER BE DRIVEN IN PLACE WITH A HAMMER, DRIFT, CHISEL OR OTHER METAL TOOL. Using babbitt, lead or soft metal and driving against the outer ring is not good practice because the bearing may be eccentric, become cocked on the shaft, as well as raise burrs on the shaft. When the construction will permit, employ the arbor press for removing and replacing the bearing, utilizing a tube as shown in illustration H. Where the press cannot be employed use the tube and a piece of babbitt or lead against the tube, making sure that the tube is not greater or smaller than the diameter of the inner ring of the bearing. In removing or replacing a bearing NEVER USE ANY PRESSURE AGAINST THE BALLS OR OUTER RING. If not equipped with an arbor press use a piece of hard wood, such as oak or hard maple, but do not direct the blows at any one point but distribute them evenly around the entire circumference, and strike each succeeding blow at a point diametrically opposite. Light blows should be struck to avoid the possibility of springing the races. These instructions apply where the bearing is a press fit.

Front Wheel Bearing Removal

To remove front wheels mounted with single-row annular or radial ball bearings, as shown in **Fig. 1,** proceed as follows: **Remove hub cap, cotter pin from lock nut and back off nut.** Grasp opposite spokes of wheel and **pull off wheel.** The inner and outer bearings will come away with the wheel. Sufficient care is not taken in the average service station to properly



The Result of Bearings Placed on Dirty Bench, Etc., or Allowed to Lie Around Unprotected for Several Days.
The lubricant attracts dirt and is also impregnated with dust and other active abrasives which quickly destroy the bearings.

clean a bearing before replacing it. The bearing should NOT BE WASHED IN DIRTY GASOLINE, kerosene or any other cleansing fluid that is not perfectly clean, as more or less metal particles and other active abrasives are present in dirty fluid or any used to wash other chassis components. As a result of the careless practice abrasives are introduced which soon ruin the bearing.

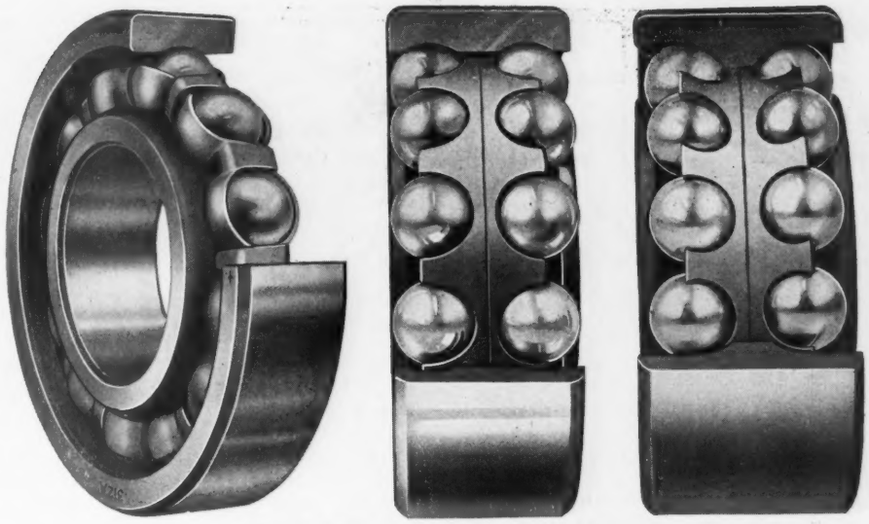
How to Properly Clean Bearings

To properly wash ball bearings make a solution of common washing soda and hot water, using about one handful of the soda to a pail of water. Use a clean pail or other vessel and have the water boiling. Either place the bearings in a wire basket, such as jewelers use, or string them on a wire. Immerse the bearings a few times in the hot fluid and until all traces of dirt and grease are removed, then dip into CLEAN KEROSENE. Give the bearings a rotating motion so that all traces of the soda solution will be removed.

With bearing clean test it for noise by holding securely the inner ring and spinning the outer. It should spin freely and like a top. Carefully inspect the raceway of the inner and outer ring and the balls. If the balls are spalled (flaked) pitted or cracked, and similarly if the raceways are not smooth, USE A NEW BEARING. Test the bearing for lateral play; that is, with the bearing in a vertical position try side movement of the inner ring. A slight amount of play is allowable and is incorporated in the design to compensate for slight inaccuracies in the machining of the housing or spacing member. Measurement of or identification of the old bearing when ordering new will be discussed later.

Why Good Lubricant is Necessary

While ball bearings do not require that continued lubrication necessary with plain bearings they do require a very high grade of lubricant. NEVER USE OTHER THAN A NEUTRAL, PURE MINERAL OIL; that is, a mineral lubricant which contains no acid or alkalies, and which will not become rancid from oxidation. When these factors are present the balls and raceways will be etched and roughened and some idea of the effect may be obtained by the ball shown at A, in illustration E. For low speed, heavy duty work, such as wheel, transmission and differential, a light mineral grease with a high melting point, such as Swan & Finch's Cupeze No. 53 or Texaco No. 0 cup grease is recommended. A test for the lubricant is to melt it. It should have approximately the same consistency after cooling. Where the bearings are small, carry light loads and run at high speeds, such as the magneto, generator, motor starter, fan shaft, and the high-speed machines such as grinders, drilling machines, etc., use a high-grade spindle oil, with a mineral base.



Three Types of Fafnir Ball Bearings

Left: Fafnir single-row radial ball bearing. Center: Fafnir double-row radial ball bearing. Right: Fafnir double-row radial-thrust ball bearing

Bearing Component Replacement

If, upon examination of the bearing after cleaning, it be found that the serial number and type letters, stamped on the inner and outer ring, are obliterated, and that a new bearing is required, either take the old bearing to a Fafnir Bearing Distributor (service station) or measure the old. There are three measurements to be made, namely, the bore of the inner ring, outside diameter, (O D) and width or thickness. An accompanying illustration shows the method of measurement. No part of a bearing can be replaced by other than the factory expert as it requires factory training and equipment to assemble the various components. The remedy for an old, worn or damaged bearing is a new one.

It may interest the reader to learn that all ball bearing manufacturers use identically the same measurements in making up standard bearings, so that when replacements are needed, no matter what has been the original bearing used, care should be taken to replace it with one whose component parts are made of high-grade steel, carefully heat treated throughout and assembled to recognized standard limits.

Removal of Radial Ball Bearings

To remove the heavy series single-row radial ball bearings from a semi-floating rear axle wheel, such as shown in **Fig. 3, remove hub cap, cotter pin and back off lock nut.** It will be necessary to use a

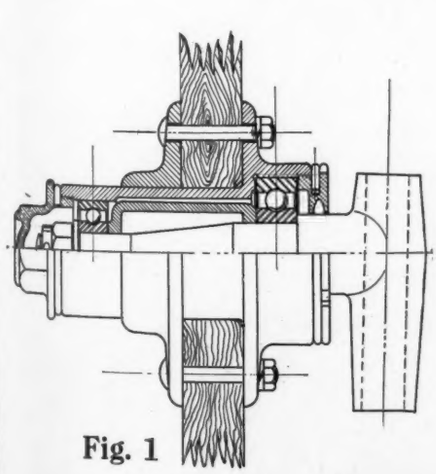


Fig. 1

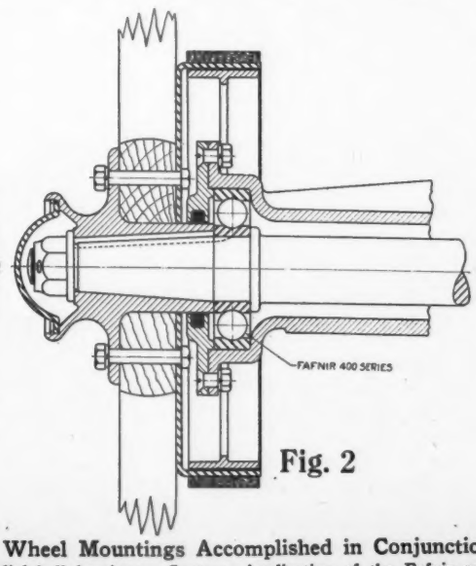


Fig. 2

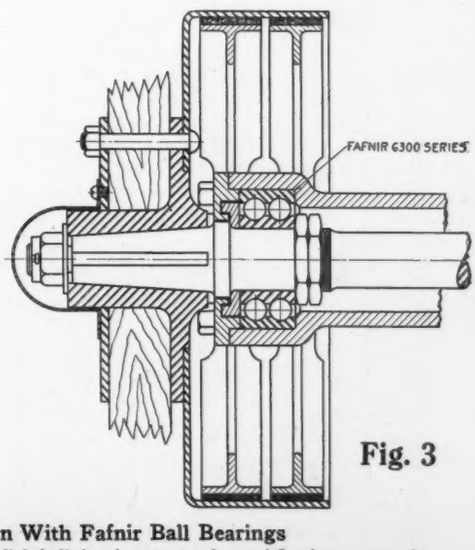


Fig. 3

Showing Three Different Wheel Mountings Accomplished in Conjunction With Fafnir Ball Bearings

Left: Front wheel mounting of the Farnir radial ball bearings. Center: Application of the Fafnir radial ball bearing to truck semi-floating rear axle. Right: Application of Fafnir double-row radial ball bearings to truck semi-floating rear axle

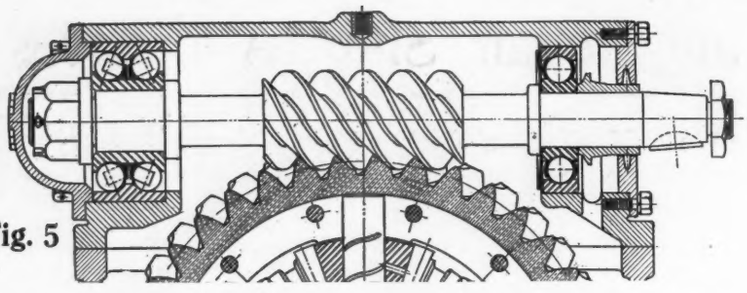


Fig. 5

Worm Shaft Mounting of Fafnir Double-Row Angular Contact and Radial Ball Bearings

wheel puller to remove the wheel from the axle shaft. **Remove end cap on housing and extract axle shaft with bearing on it.**

With the double-row radial ball bearings on the semi-floating rear axle design such as shown in **Fig. 2, remove hub cap, cotter pin and lock nut.** Use wheel puller and **remove wheel. Remove nuts and hub flange** and **remove hub and axle shaft as a unit. Remove locking nuts on axle shaft** and **displace bearing.** Directions are not given for three-quarter and full-floating types but the methods are similar, varying in the application of the bearings.

Removal of Worm Shaft Bearings

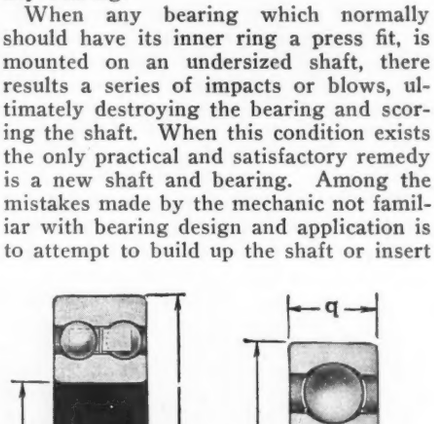
The removal of the double-acting thrust bearings and two radials shown in **Fig. 4** is accomplished after the worm carrier has been displaced. **Remove the end cap, cotter pin** in lock nut **and back off nut.** Use arbor press to **remove thrust bearing and radial next to it.** Reverse shaft on press bed and **remove other radial bearing.** Press on or off these bearings. NEVER DRIVE BALL BEARINGS ON OR OFF. The design shown in **Fig. 5** is similarly handled and differs in that there are a double-row angular contact and one radial ball bearing. With both designs it is **important that the key at the radial bearing end of the shaft is displaced before attempting to remove the radial bearings.** Bearings employed with the bevel pinion and gear types of axles should be pressed off and on the pinion shaft. It will thus be seen that an arbor press is necessary for bearing work.

Ball bearings are employed for fan mounting and may be radial or the separable type. With the last named lost motion is compensated for by pushing in the inner ring. Fan ball bearings should be given attention. In adjusting set up until the bearing is snug, then back off a full half turn. In the overhaul of the truck the fan ball bearings should be disassembled, washed, lubricated and readjusted. Generally an oil cup is the source of supply of lubricant.

Replacement and Worn Bearings

When there is play between the outer ring and housing or member carrying the bearing, and when a new bearing will not compensate for the play, it is best to employ both a new bearing and the housing. Some mechanics attempt to remedy a loose fit by prick punching or center punching the housing. Others have gone to the trouble and expense of knurling to decrease the bore of the housing. The result was that the bearing was eccentrically mounted. The results of a loose bearing are: Excessive vibration and the spinning of the outer ring in the housing or container. Vibration is destrucutive to any bearing.

When any bearing which normally should have its inner ring a press fit, is mounted on an undersized shaft, there results a series of impacts or blows, ultimately destroying the bearing and scoring the shaft. When this condition exists the only practical and satisfactory remedy is a new shaft and bearing. Among the mistakes made by the mechanic not familiar with bearing design and application is to attempt to build up the shaft or insert



Dimensions Determining Replacements
D, over all (O D); d, bore; b, width

shims or wedges. This is not practical for the simple reason that eccentricity quickly develops and ruins the bearing. A slight play in a radial thrust bearing, for example, is permissable, but it should not be confused with wear.

Care of Pilot Bearings

A ball bearing frequently neglected is the pilot bearing supporting the forward end of the clutch shaft. This bearing is not accessible or any means supplied for lubrication after the clutch unit is installed. It is suggested that in the general overhaul of the truck, or that of the clutch, that the bearing be removed, cleaned and repacked with lubricant. Care should be taken to see that the contact surfaces of the clutch and engine housing be clean as the presence of dirt or other foreign elements brings about a misalignment of the bearing that is productive of wear.

Analyzing Claims for Adjustment

It sometimes happens that abused bearings are forwarded to the factory with a claim for adjustment on the basis of faulty material or workmanship. It may interest those contemplating making a claim that whenever a bearing is received that the system for inspection and test is so rigid, and so many departments and their heads participate, that it is almost practical for the company to write the history of the bearing. The careless mechanic always leaves his trade mark as do those who use acid lubricants or none at all, or who attempt repairs along the lines previously described.

When to Lubricate Ball Bearings

The Fafnir Bearing Company recommends the cleaning and lubrication of the front and rear wheel bearings every 5,000 miles of service of the truck. Bearings when displaced and after being cleaned, should be wrapped in clean paper until repacked with lubricant and replaced. It is surprising the instances that have come to the attention of the company where bearings are allowed to lie around unprotected for several days. The illustrations at F are an example. With these types the dirt was so thick that the inner races could not be rotated. This brings up the subject of how bearings are packed at the factory and how stocked by distributors.

The Original Package Bearing

After a bearing passes through the various inspections it is thoroughly cleaned. It is next dipped in a hot packing oil or slush which serves the double purpose of protecting the highly polished parts from rust and lubrication. The bearing is next placed in an oiled paper, put in a carton and the box sealed with tape and a Fafnir trade mark label. The various steps and container are shown in illustration A. The numbers and letter on box indicate date of manufacture. By utilizing a sealed package the dealer is assured a bearing in perfect condition, one not impregnated with dirt or one that has not been exposed to moisture.

The Fafnir Bearing Company maintains branches in New York, Chicago, Cleveland and Detroit and is also represented by distributors in the various cities throughout the country. Both carry a complete stock of the bearings produced by the company and supply the trade with replacement data applying to all its types.

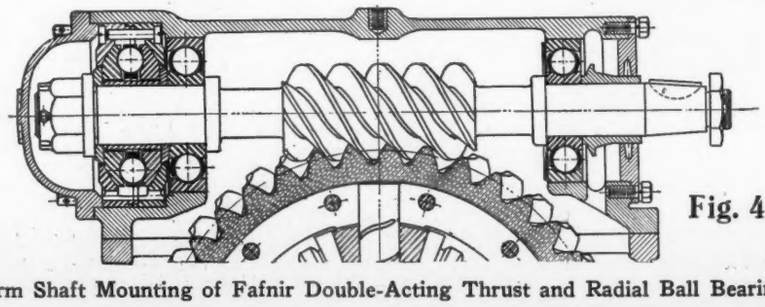


Fig. 4

Worm Shaft Mounting of Fafnir Double-Acting Thrust and Radial Ball Bearings

Service Station and Repair Shop Appliances

Adjustable Engine Stand

The Adjustable engine stand, manufactured by the Carswell Hammond Mfg. Co., Boone, Ia., is portable and its adjustable feature is said to greatly add to its efficiency, as it permits access to any part of an engine supported by it. This stand is designed to accommodate all types of truck and tractor engines.

By an arrangement of two 1-in. pipes which slide into two 1¼-in. pipes and a long lead screw with a double four thread, this stand can be quickly adjusted to any width between 0 to 33 in. by a crank at the lower part of the stand. The engine can be turned to any desired position by an easily operated worm gear and pinion. Another of its features is the new and improved method of handling the front support of three-point engines. When adjusting the stand for width the main draw support adjusts itself diagonally through the pipe sliding arrangement, thus doing away with the angle and bolt method. The front engine support slides onto the cross type support, centering itself with the engine.

The following is a brief resumé of specifications:

The side rails are 48 in. long and have two 1¾ in. angles or flanges which are 5/16 in. thick. The height to the top of the angles is 37½ in. and each angle has 24 holes 9/16 in. diam. The casters, which are of 1-ton capacity, are the double roller type. The overall width when this stand is extended is 54 in. The lead screw is 1 in. in diam. The cross support pipe is 1 in. in diam. The cross engine support is of cast iron and its studs are ½ x 3, tie strap, 1¾ x ½. Each pipe is machine threaded and screws into the castings. The journal axles, which are of cold rolled steel, are 1⅛ in. The weight of the entire stand is 265 lb.

Adjustable Engine Stand
The illustration gives an idea of the angle at which this stand may be held. Its adjustment ranges from 0 to 33 inches in width

One-Hand-Y Electric Tool

A tool that can be operated with one hand in connection with light work, such as drilling holes for oil, cotter pins, name plates or boring holes for wood screws in cabinet work, dowel pin holes in window sashes, etc., is being offered to the trade by the Knight Engineering & Sales Co., 447 N. 3rd St., Los Angeles, Cal.

It is of the pistol grip design. The grip is on a direct line with the chuck and permits a straight line pressure on the drill bit. A switch button, that is operated by the thumb, controls the power. The housing of this drill is of aluminum.

The motor is guaranteed to carry a ¼-in. drill bit through steel as fast as the work requires, with a chuck speed of 900 r.p.m. This drill cannot run idle when not in use. It is of universal type and is designed to operate from either alternating or direct current of 110 volts. It is air cooled.

The chuck spindle bronze gear is driven from a spiral cut pinion, integral with the armature shaft. The spindle has large bronze bearings and the thrust bearing

One-Hand-Y Electric Drill
Its pistol grip handle and convenient switch affords complete control with one hand

is a loose steel ball in bronze bushings. The knurled nut on the extended end of the armature shaft provides a quick simple method of holding the spindle stationary while removing the drill bit.

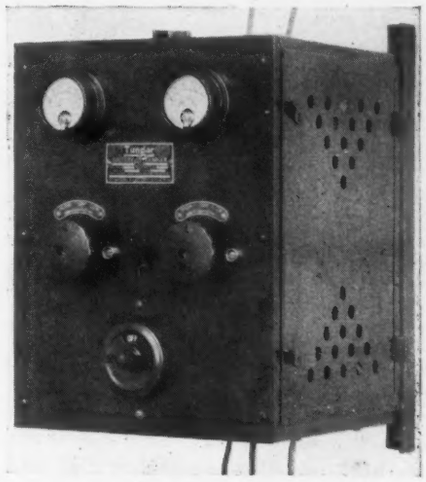
The drill is regularly equipped with 6 ft. of cord with a separate plug and a three-jaw chuck taking ¼-in. drill bits. It is guaranteed against defective design, material and workmanship. It is 8 in. long and weighs 3 lb.

Imperial Acetylene Generator Operates to 15-lb. Pressure

In the description of the Acetylene Generator, which was introduced to the trade at the Automotive Equipment Association Show at Chicago by the Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago, Ill., and which appeared in the Commercial Car Journal, December, 1920, issue, it was stated that this device operated up to 5 lb. pressure when a safety blow-off prevented greater pressure. This was a typographical error. It should have read 15-lb. pressure before the safety blow-off.

New Tungar Battery Charger

The new form of Tungar battery charger, put out by the General Electric Co., Schenectady, N. Y., is known as the Dou-



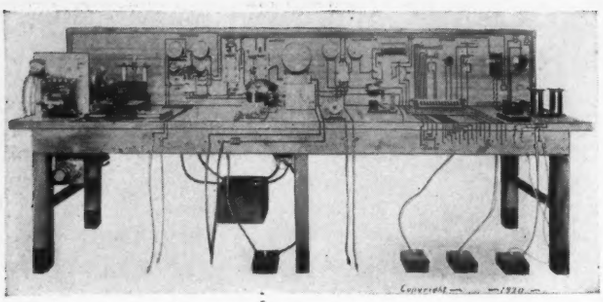
New Tungar Battery Charger
The accompanying illustration shows the new form of Tungar Battery Charger, known as the double 12-ampere 75-volt type

ble 12 amp. 75 volt type, the operation of which can be compared to that of the two 6 amp. 75 volt Tungar. A clear conception as to its general construction and assembly and various parts may be obtained from the accompanying illustration.

Test Bench for Electric Devices

The Auto Electric Repair Co., 1336 Michigan Ave., Chicago, Ill., recently introduced a test bench for the testing of electrical equipment. As may be seen from the accompanying illustration it has been designed with various unique features. The arrangement of the testing apparatus has also been such as to make for orderliness and uniformity, which facilitates quick and efficient work.

All the storage battery wiring of this stand, although actually concealed, is painted in diagram on the front piece of the switchboard and back piece of the bench, thereby permitting a clear study of the action of the various switches and circuits. Power for driving the generators and magnetos separately is through two separate 110 volt d. c. motors. These motors are wired to run in either direction at any speed. Speed control is obtained through carbon rheostats. From a blueprint, which is located on the switchboard, a complete wiring of these motors may be had. The switchboard is equipped with 6 to 12 volt relays, ammeters, voltmeters, etc., and the wiring is arranged to permit 6 different types of tests of from 2 to 6 volts to be made simultaneously without interference. Included in this bench is also a spark plug



Electrical Test Bench

Several unique features are to be found in the test bench shown herewith. Is designed for the purpose of facilitating electrical test work in the service station.

tester for determining defects under compression, and for testing magnetos likewise under compression. Other equipment is a 110 volt d. c. magnetiser, 110 volt a. c. growler and test lamp for determining defects in armatures and a machine for undercutting commutators.

Brown & Sharpe Tool Grinding Machines

Two models of the tool grinding machines of the Brown & Sharpe line, especially adaptable to service stations, garages and shops are the Nos. 0 and 1. The former is of the bench type and the latter equipped with a rigid column and a tray for holding the tools. They are offered by Brown & Sharpe Mfg. Co., Providence, R. I.

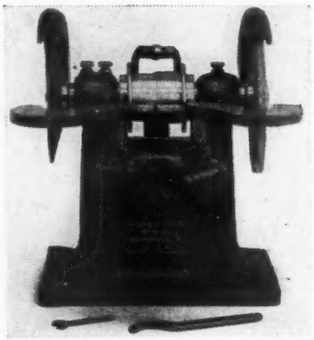
The No. 0 tool grinding machine has a spindle of tool steel, hardened and ground. It operates in phosphor bronze

Brown & Sharpe No. 1 Tool-Grinding Machine

boxes, adjustable for wear. This machine has a speed of 2725 r.p.m. and it is equipped with tight and loose pulleys for a 1-in. belt. The tapered ends of the spindle are designed to accept grinding wheel sleeves. Wheels up to 7 in. in diameter, ½ in. thick can be taken by this grinder. A wheel guard is provided. Work rests, adjustable horizontally and vertically and which can also be swung out of the way, provide a rigid support.

The net weight is 53 lb. The equipment consists of two grinding wheels, one of them 7 in. in diam., ⅜ in. thick, ¾ in hole and the other bevel and concave 6 in. in diam., ½ in. thick, ¾-in. hole; two grinding sleeves, ¾ in., two work rests and wrenches.

In the No. 1 tool grinder the spindle is tool steel, hardened and ground and the speed 2800 r.p.m. The ends of the spindle are also tapered. Work rests are provided also a countershaft with a pair of tight and loose pulleys. The net



Brown & Sharpe No. 0 Tool-Grinding Machine

weight is about 310 lb., floor space 16 to 18 in. and equipment consists of two grinding wheels, sleeves, rests, wrenches.

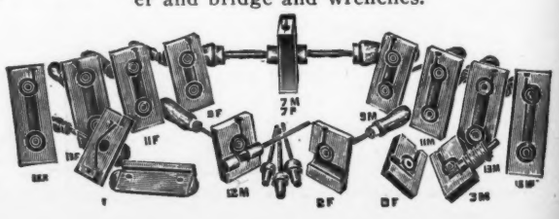
Battery Connection Moulds

The Campbell Eng. Corp., 3803 Woodland Ave., Kansas City, Mo., is offering to the repairman a set of battery moulds that will enable him to readily complete battery repair jobs by building up himself the parts which he finds necessary when overhauling a storage battery. As lead junk readily accumulates, this material, which otherwise would be practically valueless, can be used with great profit in connection with Campbell battery moulds for casting battery parts that would cost him much more to buy. Lead as junk brings but little money.

These battery moulds are made of good standard material, enabling the repair man to render good prompt service without tying up considerable investment in new parts or without the delay or waiting for parts to come from some other place, possibly out of his district. The battery mould set consists of five connector moulds, 7 to 15 plate cells, one terminal mould with 4 adapters, one post mould, one cable mould and one terminal screw mould. The price is $66.

Campbell Battery Moulds

The complete set is comprised of five connector moulds, a terminal mould with four adaptors, a post mould, a cable mould and a terminal screw mould.



Heald Introduces Two New Grinding Machines

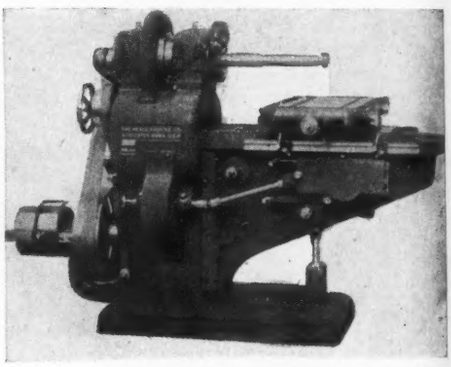
Two new grinding machines were introduced by the Heald Machine Co., Worcester, Mass. This is the No. 55 cylinder grinding machine, which has a wide range, large capacity and is belt driven, and the style No. 80 power feed Heald internal grinding machine.

The cylinder grinding machine is especially recommended for general repair work such as regrinding cylinder blocks. It is simple in that there is no change speed gear box. The machine is self-contained and has capacities for various sizes of work. The regularly furnished wheel spindle grinds holes 2⅜ in. in diam.

The speed of the grinding wheel is approximately 5500 surface ft. per min. The vertical adjustment of the knee is 2½ in. and the traverse adjustment of the cross side table is 24 in. Both the tight and loose pulleys are 10 in. in diam. and have 4½ in. faces. It is recommended that it be used in connection with a 5 hp. motor.

The Heald internal grinding machine is designed for grinding holes in small work. In addition to having the general mechanical features of the No. 8500 feed and internal grinding machine it is equipped with a power feed for a table.

The machine swings 10 in. diam. over the table, which is 39¾ x 8⅝ in. and



New Heald Grinding Machine Model 55

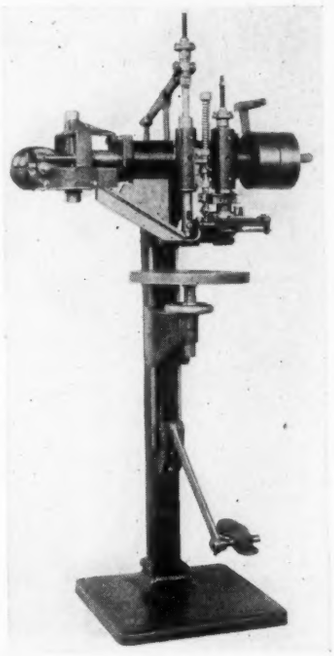
grinds up to 3¾ in. length. Diameter of the work spindle bearings is 1⅝ x 1⅜ in. and the hole through the spindle is 13/16 in. diam. This machine provides three speeds for the rotation of the work, namely, 180, 325 and 590 r.p.m. The countershaft operates at 600 r.p.m.

The tight and loose pulleys of this machine are 10 in. diam. and have 2¾ in. faces. The complete weight of the machine is 1300 lb. The standard equipment includes a countershaft and grinding head, grinding wheels, diamond holder and bridge and wrenches.

New Screw-Driving Machine

A new type automatic magazine-fed screw driving machine for binding head screws and other screws with bodies shorter than the width of the head has just been added to the line of the Reynolds Machine Co., Massillon, O.

While designed especially for this short screw work, the machine is not limited to such work as it also drives screws of ordinary length and sizes of heads. This machine is especially adaptable to light assembling work, in that it largely mitigates the strain of this tedious and exasperating job. It rapidly and easily sets screws such as switch box screws, washer head screws, etc.



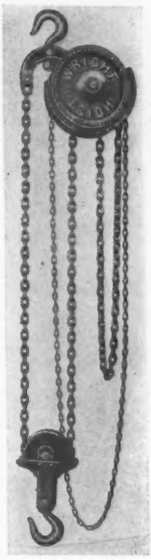
New Reynolds Screw-Driving Machine
It binds head and other screws having bodies shorter than the width of the head

The machine is controlled by a foot lever, leaving both hands of the operator free to handle or assemble the work. The machine is driven with tight and loose pulleys or with an individual motor.

Wright Steel Hoists

Included in the line of Wright chain hoists, which vary in capacities ranging from ¼ to 30 tons, are types that are specially adapted for use in the manufacture and repair of trucks. The Wright Mfg. Co., Lisbon, Ohio, is the maker of this line. The accompanying illustration shows a Wright standard screw hoist with which one man can lift a full load through the principle of "sacrifice speed and increase power." It is operated by a chain pulley.

This hoist, which is light, portable and powerful, requires but a minimum of head room and is especially adapted for general repair work. It operates on a worm and worm wheel, the worm being keyed to the same shaft as the hand chain wheel, and two load wheels which are also keyed to the same shaft, one on each side of it. The load carrying chain passes over these load wheels. The worm wheel is of phosphor bronze and the worm is of steel. The chains are electric butt welded and of a high grade special material.



Wright Standard Screw Hoist
This type is especially adapted for general repair work in the service station.

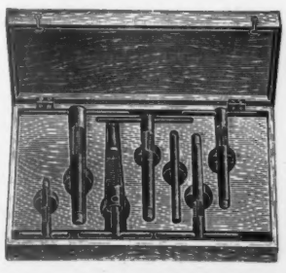
Holly Bushing Extractors

The set of bushing extractors, marketed by the Rosier-Howard Corp., Hutchinson, Kansas, consists of six tools arranged in a wooden case. Each tool has its particular place in this case and are numbered 0, 1, 2, 3, 4 and 34B.

No. 0 tool is for extracting rocker arm bushings, water pump bushings, commutator bushings and all others ranging in size from ⅜ to 7/16 in., inclusive.

No. 1 tool is of particular value in a Ford shop, as it extracts ten bushings of Ford design in addition to a large number of other standard makes of trucks and cars, ranging in size from ½ to 9/16 in., inclusive.

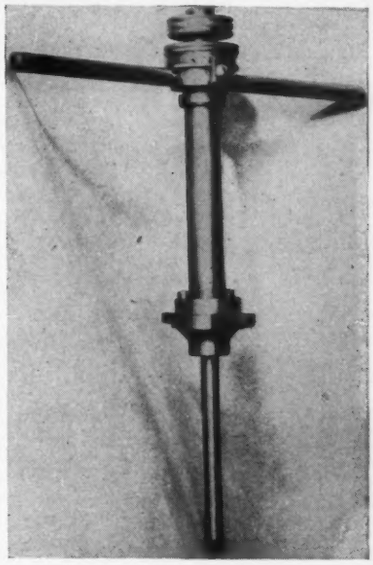
Nos. 2, 3 and 4 tools can be used on many different spindle body, wrist pin and piston bushings. No. 2 tool extracts bushings from ⅝ to 11/16 in.; No. 3, 47/64 to 13/16 in.; No. 4, ⅞ to 1 1/16 in., inclusive. No. 34B tool is a combination consisting of a taper sleeve or spool working on a threaded pin or spindle. In extracting pocket or dead-end bushings, a sleeve is threaded into the bushings and the spindle is then screwed down until it strikes the bottom of the hole. By continuing to turn the screw spindle the bushing is drawn out through sheer pull, somewhat after the fashion of a gear point. This tool extracts bushings from ¾ to 11/16 in. inside diam.



Holly Bushing Extractor Set

Adjustable Counter Bore and Facer

The Lipe adjustable counter bore and facer, put out by R. M. Lipe, 230 Alameda Ave., San Jose, Cal., is designed to reduce the valve seat to the proper width. This tool can be set to the required size, then reduced so as to permit entrance to the valve chamber without the necessity of changing the adjustment.



Adjustable Counter Bore and Facer
This device has a range from 1½ to 2⅝ inches in diameter, permitting its use in connection with any size valve

The cutters of this device are controlled from the upper end by knurled nuts and have a range of from 1½ to 2⅝ in. diam. This range permits its use for any size automobile or truck engine valve.

"Universal" Hoses

Three new hose products of the Autoquip Mfg. Co., Inc., Rochester, N. Y., are: The Universal power driven pump hose No. 310 and Universal hand pump hoses Nos. 300 and 301.

The power-driven pump hose assembly consists of 15 ft. of quality braided covered rubber tubing, tested to withstand 200 lb. air pressure, a 200-lb. air gage, from which may be determined the amount of air in the tire, a screw connection, universal to all pumps and applied at one end, and a quick-acting chuck for engaging the tire valve, applied at the other end.

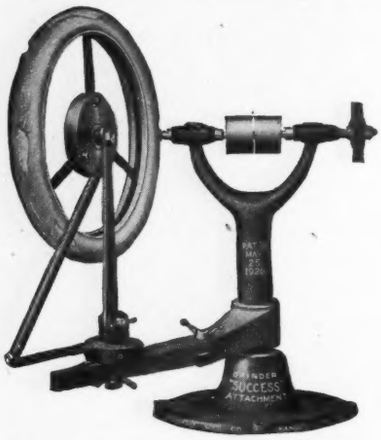
This pump is packed in an individual carton which keeps it free from oil and dirt. The price of this assembly, complete, is $3.50.

The Universal hand pump hose assembly is interchangeable and easily adapted to hand pumps of any manufacture. One end contains a connection adaptable to all inner tube stems. On the other end is provided an adjustable hose clamp which will fit any pump valve stem. It is attached by simply slipping the hose over the valve stem and tightening the screw with a screw driver. The No. 300

assembly lists at $.75 and the No. 301 assembly lists at $1. Both assemblies are 24 in. long and packed in cartons of ten.

Success Buffing Machine

The Durham Mfg. Co., 1518 Grand Ave., Kansas City, Mo., is about to put on the market a new machine, the Success Buffing Machine, which is designed



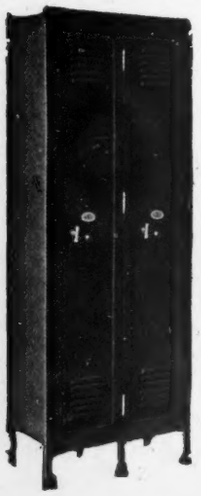
Durham Success Buffing Machine
For removing worn and old tread portions of casings

to expedite the work of retreading and perform this work in an even and uniform manner.

The tire supporting members of this equipment are rotatable, permitting the tire to be revolved and also adjusted to receive different size tires. The horizontally adjustable supporting arm is constructed so as to allow it to be either locked or revolved, thus permitting the tire to be swung around to the buffing wheel without the need of removing it from the machine. Another feature of its design is that the construction of the extending arm permits its attachment and use successfully in conjunction with buffing, cutting or grinding machines of any type or design.

Universal Steel Unit Equipment

The Universal steel unit equipment line includes shelving, bins, racks, storage cabinets, tote boxes, lockers, etc., all of which are items of interest to the automotive trade. They are the products of the New York Machinery Co., 200 Fifth Ave., New York.



Universal Steel Locker
This type adapted for employee's use, as it provides ample space for clothing.

Steel equipment utilized for such purposes as lockers for employes, shelving for stock and the like, storage place for supplies, insures a permanent, sanitary and safe protection by greatly reducing fire risk.

The equipment for these different uses is complete and well constructed in every detail and varies in design according to its purpose.

Victory Floor Scraper

A device that is especially constructed for removing hard dirt, caked grease and oil from wood or concrete floors is being marketed by the Cel-On Co., Brooklyn, N. Y. It is known as the Victory Garage Floor Scraper and is a piece of equipment that should be included in the cleaning equipment of every up-to-date garage and repair shop.

In general appearance it is that of a broom. The lower end of the scraper is

Victory Garage Floor Scraper
Useful in the garage or repair shop for removing caked grease or oil from wood or concrete floors.

weighted so that it rests heavily on the floor. The upper part of the metal part of the scraper provides a foot push which is a feature that, together with the weighted end, greatly reduces the amount of pressure that would otherwise be required from the arms of the operator.

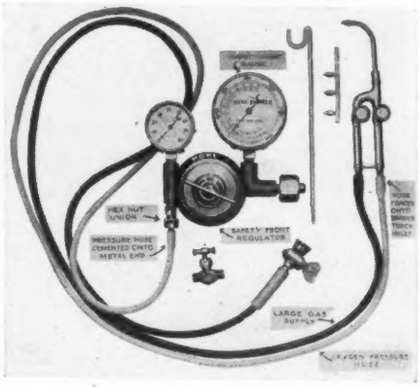
The handle of this appliance is of ash and the lower end is a grey iron casting. The actual scraper, or the part that comes in contact with the matter to be removed from the floor, is a reversible steel plate, one edge of which is straight and the other notched. The notched edge is employed when it is necessary to start the removal of an exceptionally hard caked substance and the straight edge for scraping up loosened material. This plate is fastened by two bolts and nuts. Change from the notched to straight edge can be accomplished in a few moments.

This scraper is 5½ ft. high and weights 9 lb.

Hoke-Shontz Lead-Burning Outfit

The features of the lead-burning outfit, marketed by the H. B. Shontz Co., Inc., 161 W. 64th St., New York City, are stated to be economy, ease of control, safety and efficiency.

This outfit is fitted with a needle valve shut off, which is easily operated and adjustable. It includes a regulator and



Hoke-Shontz Lead-Burning Outfit
This complete outfit for lead burning is being introduced as a product of the Shontz line

gage, high pressure indicating gage and a torch with two 6 ft. lengths of hose. Cemented to the hose is a metal tail piece which connects with the regulator without the use of clamps.

Four sizes of tips are furnished and a bench hook comes with each torch. The pressure reducing regulator will deliver uniform pressure. The complete outfit sells at $55. Other outfits containing different equipment are also offered.

Federal Welding Outfit No. H-O

The welding outfit offered by the Peerless Welding Co., 505 W. 45th St., New York, is designed to meet the needs of the garage and repair shop. It is of safe and simple design and so constructed that carelessness or forgetfulness cannot endanger the operator.

Federal Welding Outfit No. H-O

Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line

Fan Belt Type: V—V-Shape, F—Flat, R—Round

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Acason R-1—1920	4	1/4	1										11 1/2	3	1/4	2	11 1/2	3	1/4	2	112	34
Acason RB-1 1/2—1920	4	1/4	1										11 1/2	3 1/2	1/4	2	11 1/2	3 1/2	1/4	2	112	34
Acason H-2 1/2—1920	3	1/4	1 1/4										13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	130	35
Acason L-3 1/2—1920	3	1/4	1 1/4										16	3 3/4	1/4	2	16	3 3/4	1/4	2	163 3/4	35
Acason M-5—1920	3	1/4	1 1/2										18	4 1/2	1/4	2	18	4 1/2	1/4	2	167 1/2	35
Ace, Series A 1 1/2—1920	3	1/8	1 1/4	1 1/4	....	10 3/4	2 1/4	6 1/4	2	37 1/2	1	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	122 1/2	32
Ace, Series A2 1/2—1919-20	4	1/4	1 1/4	1 1/4	....	10 3/4	2 1/4	6	1 1/4	33	1 1/4	F	13	3 1/4	1/4	4	13	3 1/4	1/4	4	144 1/2	32
Acme 3/4	3	1/8	1	1	....	11	2	11	2	38 3/4	3/4	V	12	2 3/4	1/4	4	12	2 3/4	1/4	4	110 3/8	34
Acme B-1—1916-20	3	1/8	1	1	H	11	2	11	2	38 3/4	3/4	V	12	3 1/4	1/4	4	12	3 1/4	1/4	4	110 3/8	34
Acme F-1 1/2—1919-20	3	1/8	1	1	H	8	1 1/2	11 1/2	1 1/2	40	1 1/4	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	122	34
Acme A-2—1916-20	3	1/8	1 1/4	1 1/4	H	7	1 1/4	11	1 1/4	33 3/4	3/4	V	13	3 1/2	1/4	4	13	3 1/2	1/4	4	135 1/2	34
Acme C-3 1/2—1917-20	3	1/8	1 1/4	1 1/4	H	12	1 3/4	8	1 1/4	33 1/2	1 1/4	F	15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	150 1/2	36
Acme E-5—1919-20	3	1/4	1 1/2	1 1/2	H	11	2	14	2	40 1/2	2	F	18	4	1/4	4	18	4	1/4	4	160 3/8	37
All-American B-1—4000	3	1/8	1 1/8	2	H	14	2	16 1/2	2	35	1	F	45	2 1/2	1/8	2	43 1/8	2 1/4	1/8	2	104	31
All-American C-1 1/2—6000	3	1/8	1 1/8	2	H	11	2	14	2	40 1/2	1 1/8	F	45	2 1/2	1/8	2	43 1/8	2 1/4	1/8	2	116 7/8	34
Apex C-1	3	1/8	1	1	V	7 1/4	2	12	2	39	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex D-1 1/2	3	1/8	1	1	V	7 3/4	2	12	2	39	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex E-2 1/2	4	1/4	1	1 1/4	V	7 1/2	1 1/4	8	2	34	1	....	54	2 1/4	....	2	53 1/4	2	....	2	128	31 1/2
Armleder 20	4	1/4	1	1/8	V	13	1 3/4	16 1/2	1 1/4	31 3/4	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	104 1/4	32
Armleder KW-3 1/2—1916-20	4	1/4	1 1/4	1/8	V	12 1/4	2	16 1/2	1 1/4	36	2	F	42	3	1/8	1	16	3 3/4	1/8	8	150	36
Armleder HW-2 1/2—1916-20	4	1/4	1 1/4	1/8	V	10	1 1/2	11 1/2	1 1/4	34	2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	140	32
Atco B-1 1/2	4	1/4	1	1	V	11	2	11	1 1/4	31 1/2	2	F	25 1/2	2 1/2	1/8	4	18	2 1/2	1/8	4	.....	32
Atco A-2 1/2	4	1/4	1 1/4	1 1/4	V	12	2	11	1 1/4	33 1/4	1 1/4	F	25 1/2	2 1/2	1/8	4	18	2 1/2	1/8	4	.....	33
Atco C-3 1/2	4	1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	30	2 1/2	1/8	4	22 1/2	2 1/2	1/8	4	.....	34
Atterbury 20R-1 1/2—1920	4	1/8	1	3/8	....								11 1/8	3 1/4	1/4	4	11 1/8	3 1/4	1/4	4	122 1/8	34
Atterbury 7CX-2 1/2—1919-20	3	1/8	1 1/4	3/8	....								13 1/8	3 1/2	1/4	4	13 1/8	3 1/2	1/4	4	133 3/8	34
Atterbury 7D-3 1/2—1917-20	3	1/8	1 1/4	3/8	....								15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	145 3/8	37 1/2
Atterbury 8E-5—1919-20	3	1/4	1 1/2	3/8	....								17 3/4	4	1/4	4	17 3/4	4	1/4	4	157 7/8	37 1/2
Autocar XXI-F-2—1915-20	4	1/8	1 1/8	....	....	3	1 1/8	4	1 1/8	....	....	....	16 1/4	2 1/2	1/8	4	13	2 1/2	1/8	4	91	34
Autocar XXI-G-2—1920	4	1/8	1 1/8	....	....	3	1 1/8	4	1 1/8	....	....	....	....	2 1/2	1/8	4	13	2 1/2	1/8	4	114	34
Autocar XXVI-Y4—1920	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	48 3/4	1 1/2	F	25 1/2	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	121	34 1/4
Autocar XXVI-B-4—1920	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	48 3/4	1 1/2	F	25 1/2	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	176	34 1/4
Available H-1 1/2—1920	4	1/8	2 1/4	1 1/8	....	11	1 3/8	14	1 3/8	40	2	....	48	2 1/2	1/4	2	36	2 1/2	1/4	2	120	32
Available H-2 1/2—1916-20	3	1/8	2 1/4	1 1/8	....	11	1 3/8	14	1 3/8	40	2	....	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	32
Available H3—1916-20	3	1/8	2 1/2	1 1/8	....	11	1 3/8	14	1 3/8	42	2	....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	36
Available H5—1916-20	3	1/4	2 1/2	1 1/4	....	12	2	16	2	40	2	....	18	4	1/4	4	18	4	1/4	4	168	38
Available H7—1919-20	3	1/4	2 1/2	1 1/4	....	12	2	16	2	40	2	....	72	3 1/2	1/4	2	72	3 1/2	1/4	2	168	38
Avery 1—1920	3	1/8	....	7/8	....	10	2	6 1/2	2	31 3/4	1 1/2	F	19 1/2	2	1/8	4	18 1/2	2	1/8	4	85	30
Beck-Hawkeye A-1—1912-20	....	....	1 1/2	1 1/4	....								24	2	1/8	1	24	2	1/8	1	114	54
Beck-Hawkeye B-1 1/2—1912-20	....	....	1 1/2	1 1/4	....								24	2	1/8	1	24	2	1/8	1	114	66
Beck-Hawkeye C-2—1912-20	....	....	1 3/4	1 1/2	....								25	2 1/4	1/8	1	25	2 1/4	1/8	1	114	66
Beck-Hawkeye D-3—1920	3	1/8	1 3/4	1 1/2	....								25	2 1/4	1/8	1	25	2 1/4	1/8	1	136	72
Bell E-1 1/2	4	1/8	1	1/8	....								39	2 1/2	1/8	1	48	3	1/4	1	114	34
Bell O-2 1/2	4	1/8	1 1/4	1/8	....								48	2 1/2	1/8	1	54	3	1/4	1	126	34
Belmont A-1	....	....	1	1 1/2	....								32	2	1/8	2	31	1 1/2	1/4	2	78	34
Belmont B-1 1/2	....	....	1	1 1/2	....								41	2	1/4	2	40	1 1/2	1/4	2	120	36
Belmont C-2	....	....	1	1 3/4	....								41	2 1/2	1/4	2	40	2	1/4	2	124	36
Bessemer G-1—1917-20	3	1/8	1	1/8	V	10	2 1/4	11 1/2	2 1/4	42	5/8	V	47 1/2	2	1/8	2	45 1/2	2 1/4	1/8	2	98	34
Bessemer H-2-1 1/2—1917-20	3	1/8	1	1/8	V	10	2 1/4	11 1/2	2 1/4	43	5/8	V	56 1/2	2 1/2	1/8	2	55	2 1/2	1/8	2	116	34
Bessemer J2-2 1/2—1919-20	3	1/8	1 1/4	1/8	V	5	1 7/8	12	2 1/2	36 1/4	1 1/4	F	56 1/2	2 1/2	1/8	2	55	2 1/2	1/8	2	141	34
Bessemer K2-4—1919-20	3	1/8	1 1/4	1/8	V	10	2 1/4	11 1/2	2 1/4	39 3/8	1 1/2	F	58 1/2	3 1/2	1/8	2	30 1/4	4 1/2	1/8	1	157 1/2	38
Bethlehem K-1—1920	3	1/8	1	1/4	....								49	2	1/8	1	21	2	1/8	2	90	32 1/8
Bethlehem G-2—1920	3	1/8	1 1/4	1/4	....								43	2 1/2	1/8	1	40 1/8	1 3/4	1/8	2	120	34 1/2
Bethlehem H-3—1920	3	1/8	1 1/4	1/4	....								51	3	1/8	1	49	2	1/8	2	132	34 1/2
Bethlehem J-4—1920	3	1/4	1 1/4	1/4	....								55	3	1/8	1	50	2	1/8	2	156	34
Brinton F-2 1/2—1914-1920	3	1/8	1 1/8	3/8	....	11	1 1/4	13	1 1/4	33	1/4	F	13	3 1/2	1/4	2	13	3 1/2	1/4	2	135 1/2	33
Brockway S2-1 1/2—1919-20	3	1/8	1	....	V	10 1/2	2 1/4	5 1/2	2 1/4	39	1 1/4	F	20	2	1/8	4	20	2	1/8	4	118	32
Brockway K4-2 1/2—1919-20	3	1/8	1 1/4	....	V	6 1/2	1 3/4	13	1 1/4	34	1 1/4	F	12	3 3/8	1/8	4	12	3 3/8	1/8	4	142	34
Brockway R-2-3 1/2—1919-20	3	1/8	1 1/4	....	V	9 1/2	1 3/4	14	1 1/4	34	1 1/2	F	15 5/8	3 3/4	1/8	4	15 5/8	3 3/4	1/8	4	176	36
Brockway T-5—1919-20	3	1/4	1 1/2	....	V	13	2	22	2	40 3/4	2	F	18	4	1/8	4	18	4	1/8	4	176	36
Capitol G1 1/2	4	1/8	1 1/8	1 1/8	V	18	1 3/4	18	1 1/4	32 1/8	1 1/4	F	47 1/8	2 1/2	1/8	1	33 1/4	2 1/2	1/8	1	120	32
Capitol H-2 1/2 and K-2 1/2	3	1/4	1 1/8	1 1/8	V	18	1 3/4	18	1 1/2	39 1/2	2	F	57 1/2	2 1/2	1/8	1	42 1/2	2 1/2	1/8	1	132	34
Capitol M-3 1/2	3	1/4	1 1/8	1 1/8	V	18	1 3/4	18	1 1/2	39 1/2	2	F	57 1/2	2 1/2	1/8	1	42 1/2	2 1/2	1/8	1	144	34
Chicago C-1 1/2—1919-20	4	....	1	1 1/2	....								12 1/8	3 1/4	1/4	4	12 1/8	3 1/4	1/4	4	123	32
Chicago C-2 1/2—1919-20	4	....	1 1/4	1 3/4	....								13 3/4	3 1/2	1/4	4	13 3/4	3 1/2	1/4	4	135	32
Chicago C-3 1/2—1919-20	4	....	1 1/4	1 3/4	....								16	3 3/4	1/4	4	16	3 3/4	1/4	4	180	36 3/4
Chicago D-5—1920	4	....	1 1/4	1 3/4	....								18	4	1/4	4	18	4	1/4	4	180	36 3/4
Climber A-20	3	1/8	1	1 1/4	H						1	F	16	2 1/4	1/4	2	16	2 1/8	1/8	2	120	34
Clydesdale 120C-5	4	1/4	1 1/8	1/8	V	6 1/4	2	18 1/2	2	46 1/2	2	F	18	4	1/4	4	18	4	1/4	4	131	38
Clydesdale 90C-3 1/2	4	1/8	1 5/8	1/8	V	11	1 1/2	11	1 1/2	48 1/2	1 1/2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	142	38
Clydesdale 65EC 2 1/2	4	1/8	1 5/8	1/8	V	11	1 1/2	11	1 1/2	48 1/2	1 1/2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	130 5/8	33 1/4
Clydesdale 65C-2 1/2	4	1/8	1 1/8	1/8	V	11	1 1/2	11	1 1/2	48 1/2	1 1/2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	130 5/8	33 1/4
Clydesdale 42C-1 1/2	4	1/8	1 1/8	1/8	V	9	1 1/2	9	1 1/2	43	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	115	34
Clydesdale 32-C-1	4	1/8	1 1/8	1/8	V	9	1 1/2	9	1 1/2	43	1 1/2	F	20	1 3/4	1/4	4	20	1 3/4	1/4	4	115	34
Collier 18-1—1919-20	3	1/8	1	....	V	9 3/4	2	10 1/2	1 1/4	40	1	F	24	3 1/2	1/8	4	24	3 1/2	1/8	4	106	35 1/4
Collier 19-1 1/2—1919-20	3	1/8	1	....	V	9 3/4	2	10 1/2	1 1/2	40	1	F	24	3 1/2	1/8	4	24	3 1/2	1/8	4	120	32
Collier 21-2—1918-20	3	1/8	1 1/2	....	V	6	1 1/2	10 1/2	1 1/4	40	1	F	27 1/2	3 1/2	1/8	4	27 1/2	3 1/2	1/8	4	132	32
Collier 22-2 1/2—1919-20	3	1/8	1 1/2	....	V	6	1 1/2	10 1/2	1 1/4	40	1	F	27 1/2	3 1/2	1/8	4	27 1/2	3 1/2	1/8	4	144	32

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Columbia G-2½—1920	3	7/32	1¼	1¼	....	....	....	....	....	....	....	....	55	3	1/4	2	50	2	1/4	2	132	321/2
Comet-1½	4	7/32	1	1	....	9	....	....	....	27	1	F	17¼	2¼	1/4	2	17¼	1½	1/8	2	100	36
Commerce T-1500	3	7/32	1	1/4	....	....	....	....	....	....	....	....	50	2	1/4	2	48½	2	1/4	2	92 5/8	34
Commerce E-1, 1½	3	7/32	1	1/4	....	....	....	....	....	....	....	....	45	2½	1/4	2	43	2¼	1/4	2	92 5/8	34
Commerce EP 1½, 2	3	7/32	1	1/4	....	....	....	....	....	....	....	....	45	2½	1/4	2	43	2¼	1/4	2	99 5/8	34
Concord A-1½—1920	4	¼	1¼	7/32	H	11	2 3/8	9½	1½	34	2	F	12	3¼	¼	4	12	3¼	¼	4	124 5/8	32½
Concord B-2½—1920	4	¼	1¼	7/32	H	11	2 3/8	9½	1½	34	2	F	13½	3½	¼	4	13½	3½	¼	4	144 5/8	32½
Corbitt E-1—1917–20	3	7/32	1	7/32	....	8	2	14	2	38	5/8	V	19	2	1/4	2	19	2	1/4	2	105	84
Corbitt D-1½—1916–20	3	7/32	1¼	7/32	....	8	2	14	2	38	5/8	V	45¼	2	1/4	1	45¼	2	1/4	1	120	34
Corbitt C-2—1915–20	3	7/32	1¼	7/32	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	1/4	1	51½	2¼	1/4	1	138	35
Corbitt B-2½—1916–20	3	7/32	1¼	7/32	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	1/4	1	51½	2¼	1/4	1	138	35
Corbitt AA-5—1919–20	3	¼	1½	7/32	....	13	1¼	8	1¼	36	2	V	69¼	3	1/4	1	69¼	3	1/4	1	160	38
Corbitt A-3½—1917–20	3	7/32	1¼	7/32	....	13	2	14	2	36	1¼	V	64	2½	1/4	1	64	2½	1/4	1	160	35
Couple Gear HC-3½—1906–20	3	....	2	1¼	....	12	2	....	....	39	1	....	48	3	1/4	2	.....	.....	.....	.....	168	42
Couple Gear AC-5—1908 20	3	....	2	1¼	....	12	2	....	....	39	1	....	48	3	1/4	....	.....	.....	.....	.....	168	42
Couple Gear LD-6—1917–20	3	....	2	1¼	....	12	2	....	....	39	1	....	48	3	1/4	....	.....	.....	.....	.....	168	42
Dart H-1—1920–21	3	7/32	1¼	1 11/32	H	11	2	8	1¾	36	1	F	19	1¾	1/4	4	19	1¾	1/4	4	102	34
Dart S-1½—1920–21	3	7/32	1¼	1 11/32	H	11	2	8	1¾	36	1	F	19	1¾	1/4	4	19	1¾	1/4	4	112	34
Dart M-2½—1920–21	4	¼	1¼	1 11/32	H	11	2	14	1¼	35	2	F	10	2½	1/4	2	19	3½	1/4	4	124	34
Dart W-3½—1920–21	4	¼	1½	2	H	11	2	12	1½	36	2	F	28	2¾	1/4	4	28	2¾	1/4	4	144	38
Day-Elder A-1	3	7/32	1¼	7/32	V	9	2	9	2	40	5/8	V	19	2	1/4	4	19	2	1/4	4	108	35
Day-Elder B-1½	3	7/32	1¼	7/32	V	9	2	9½	2	40	5/8	V	19	2	1/4	4	19	2	1/4	4	120	35
Day-Elder D-2	3	7/32	1¼	7/32	V	4	1½	9	1 3/8	35	5/8	V	45	2	1/4	2	45	2	1/4	2	125	35
Day-Elder C-2½	3	¼	1¼	7/32	V	10½	2	12	1 3/8	36¾	2	F	52	2¼	1/4	2	52	2¼	1/4	2	123	35
Day-Elder F-3½	3	7/32	1½	7/32	V	6¾	1¾	12	1¼	35¼	1½	F	56½	2½	1/4	2	56½	2½	1/4	2	148	35
Day-Elder E-5	3	¼	1½	7/32	V	12½	2	10	1 3/8	38½	1½	F	69	3	1/4	2	69	3	1/4	2	155	37
Dearborn BW-2—1915–17–19–20	3	....	1	.....	....	8¾	2	6	1¾	37	1	F	18	2½	1/4	2	18	1½	1/8	2	130	32
Dearborn F-1½—1915–17–19–20	3	....	1	.....	....	12	2	8	1¾	37	1	F	16½	2½	1/4	2	16½	1½	1/8	2	96½	34
Dearborn C-1—1915–17–19–20	3	....	¾	.....	....	.....	.....	.....	.....	.....	.....	.....	38	2	1/4	1	38	2	1/8	1	107	32
Defiance B-1½—1918–19–20	3	7/32	1	1	V	10	2	8	2	40¾	1¼	F	45	2½	1/4	1	43	2¼	1/4	1	116	34
Defiance C-2—1918–19–20	3	7/32	1	1	V	10	2	8	2	40¾	1¼	F	54	2½	1/4	1	52½	2¼	1/4	1	116	34
Defiance D—1920–21	3	7/32	1	1	V	10	2	8½	1¼	40¾	1¼	F	45	2½	1/4	1	43	2¼	1/4	1	120	34
Defiance E—1920–21	3	7/32	1	1	V	10	2	8½	1¼	40¾	1¼	F	54	2½	1/4	1	52½	2¼	1/4	1	120	34
Denby 12-1—1920	3	7/32	1	1	....	12	2	9	2	42	¾	V	43½	2½	1/4	1	39½	1¾	1/4	1	98	34
Denby 33-1½—1920	3	7/32	1	1	....	12	2	9	2	42	¾	V	8½	4	1/4	2	44	1½	1/4	1	120	34
Denby 134-2—1920	3	7/32	1	1	....	12	2	9	2	42	¾	V	51¼	2½	1/4	1	47	2	1/4	1	127	34
Denby 25-3—1920	3	7/32	1¼	1¼	....	12	2	9	2	35	1¼	F	55¾	3	1/4	1	51	2	1/4	1	127	34
Denby 27-4—1920	3	7/32	1¼	1¼	....	13	1¾	16¼	1¼	39¾	1½	F	61½	3	1/4	1	8½	4	1/4	2	140	34
Denby 210-5—1920	3	7/32	1¼	1¼	....	13	1¾	16¼	1¼	39¾	1½	F	89	2¼	1/4	1	8½	4	1/4	2	140	34
Dependable Dispatch A-1 1921	3	7/32	1¼	7/32	H	11	2	16	2	.....	.....	F	42½	1¾	1/4	1	42½	1¾	1/4	1	108	33
Dependable C-1½—1920–21	4	7/32	1	7/32	V	14	2	2¼	15	1 3/8	37½	2	F	53½	2½	1/4	1	38½	2½	1/4	1	121	33
Dependable D-2 1920-21	4	¼	1¼	7/32	V	10	2	2¼	11½	1¼	37½	2	F	53½	2½	1/4	1	38½	2½	1/4	1	140	33
Dependable E-2½—1920–21	4	¼	1¼	7/32	V	10	2¼	11½	1¼	37½	2	F	63	2½	1/4	1	49	2½	1/4	1	152	33
Dependable G-3½ 1921	4	¼	1¼	7/32	V	13	2	13	1¼	37½	2	F	63	2½	1/4	1	49	2½	1/4	1	170	33
Diamond O-1¼	3	7/32	1	1¼	V	9	1¼	6	1¼	35	2	F	10¾	3	1/4	4	10¾	3	1/4	4	100	34
Diamond T-FS&T-1½	3	7/32	1	1¼	V	9	1¼	6	1¼	35	2	F	11½	3¼	1/4	4	11½	3½	1/4	4	Opt	34
Diamond T-U-2	3	7/32	1¼	1¼	V	9	1¼	6	1¼	35	2	F	13¼	3½	1/4	4	13¼	3½	1/4	4	Opt	34
Diamond TK-3½	3	7/32	1¼	1½	V	10	1½	10	1½	35	2	F	15⅝	3¾	1/4	4	15⅝	3¾	1/4	4	Opt	37
Diamond T-EL-5	3	7/32	1¼	1½	V	10	1½	10	1½	35	2	F	18	4	1/4	4	17 11/16	4	1/4	4	Opt	37
Diamond T-S-5	3	7/32	1½	1¾	V	9	2	21	2	40⅜	2	F	18	4	1/4	4	17 11/16	4	1/4	4	Opt	37
Diehl A	3	....	1	1	....	.....	.....	.....	.....	.....	.....	.....	28	2½	1/8	2	27	2	1/8	2	90	.....
Doane 2½—1917–18–19–20	3	¼	1¼	7/32	H	9	1¼	12	1¾	32	1½	F	35	3	1/4	2	18	3½	1/4	4	126	53
Doane 3½—1920	3	¼	1¼	7/32	H	12	1¼	15	1½	38⅜	1½	F	35	3	1/4	2	18	3½	1/4	4	156	58
Doane 6—1917–18–19–20	3	¼	1½	7/32	H	15	1¼	17½	1¼	43	1½	F	38	3	1/4	2	24	4	1/4	4	168	64
Dodge Bros.-½—1920–21	3	7/32	1	7/32	....	7	1½	7¾	1 11/16	31	1	F	19¼	2¼	1/8	2	14¾	1¾	1/4	2	47¾	38
Dorris K-2-2½—1918–20	3	¼	1¼	1¼	V	2¼	1½	6¾	1¼	40⅜	1	F	13½	3½	1/4	4	13½	3½	1/4	4	142¾	34
Dorris K7-3½—1919–20–21	3	¼	1¼	1¼	V	2¼	1½	6¼	1¼	40⅜	1	F	15¾	3¾	1/4	4	15¾	3¾	1/4	4	179½	36
Double Drive B3	4	¼	1¼	1¼	....	.....	.....	.....	.....	.....	.....	....	29	2¼	1/4	1	29	2¼	1/4	1	124	36
Douglas GW-1½	3	....	1¼	1/4	....	.....	.....	.....	.....	.....	.....	....	45	2½	1/8	2	44	2¼	1/8	2	118	31
Douglas G-1½	3	....	1¼	1/4	....	.....	.....	.....	.....	.....	.....	....	46	2½	1/8	2	44	2¼	1/8	2	118	31
Dougls H-2	3	....	1¼	1/4	....	.....	.....	.....	.....	.....	.....	....	55	2½	1/8	2	52	2¼	1/8	2	118	31
Douglas HW-2	3	....	1¼	1/4	....	.....	.....	.....	.....	.....	.....	....	54	2½	1/8	2	42	2¼	1/8	2	118	31
Douglas I-3	3	....	1¼	1/4	....	.....	.....	.....	.....	.....	.....	....	58	2½	1/8	2	44	2¼	1/8	2	132	31
Duplex E-3½	3	¼	1¼	1	....	.....	.....	.....	.....	.....	.....	....	9½	2½	1/4	2	5½	2½	1/4	2	126	39¾
Duplex A	....	....	1¼	1½	....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	4	.....	2	.....	4	121	34
Duty 2—1921	3	7/32	1½	1¼	....	7	2¼	18	2	38	1	F	45	2½	1/8	1	40	1¾	1/8	1	123	44
Eagle 100-2	4	¼	1¼	1	....	14	2	16	1¼	37	2	....	49½	3	1/4	4	46	2	1/4	1	Opt	36
Ellsworth 25A-½—1918–20	3	7/32	1¼	1¼	....	.....	.....	.....	.....	.....	.....	.....	12	1¼	1/4	4	12	1¼	1/4	4	Opt	36
Fageol 1½—1920	3	¼	1 7/16	1½	V	15½	1¼	7	....	31	5/8	V	19¼	1¾	1/8	2	19¼	1¾	1/8	2	120	30
Fageol 2½—1917–20	3	¼	1 11/32	1 11/32	V	10	1¼	14½	....	34¾	1½	F	13¼	3½	1/4	2	13¼	3¼	1/4	2	141	34
Fageol 4500—1917–20	3	¼	1 5/8	2	V	9	1¼	17½	....	40½	1½	F	15½	3¾	1/8	2	15½	3¾	1/8	2	159½	37¾
Fageol 5300—1917–20	3	¼	1 5/8	2	V	9	1¼	17½	....	40½	1½	F	18	4	1/8	2	18	4	1/8	2	161¼	37¾
Fargo O17, P18-2, P19-2, P20-2	3	7/32	....	1 1/16	....	10	2	10	2	42	5/8	V	52	3	1/8	2	50½	2	1/8	2	132	33
Federal SD-1	4	7/32	1	1 1/16	V	15	1½	7	1½	35 5/16	1	F	10 11/16	3	1/4	4	10 11/16	3	1/4	4	112	34
Federal TE-1½	3	7/32	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	1/4	4	13 1/16	3½	1/4	4	118	34
Federal UE-2	3	7/32	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	1/4	4	13 1/16	3½	1/4	4	134	34
Federal WE-3½	3	7/32	1¼	1½	V	12½	1¼	9	1¼	39	1½	F	15⅝	3¾	1/4	4	15⅝	3¾	1/4	4	154	38
Federal XE-5	3	7/32	1¼	1½	V	12½	1¼	9	1¼	39	1½	F	17 11/16	4	1/4	4	17 11/16	4	1/4	4	154	38
Federal Light Duty	3	7/32	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	1/4	4	13 1/16	3½	1/4	4	86	34
Federal Heavy Duty	3	7/32	1¼	1½	V	12½	1¼	9	1¾	39	1½	F	15⅝	3¾	1/4	4	15⅝	3¾	1/4	4	82	38
Ford T-1	3	¼	1.06	1 1/16	H	4	2	.....	1¾	26	1 1/8	F	23 1/16	1 1/8	1/8	1	12	1 1/8	1/8	2	124	23
Front Drive C1½	4	7/32	1	1½	....	.....	.....	.....	.....	.....	.....	.....	13	3	1/4	2	15	3	1/4	2	124	36
F.W.D. B-3	3	¼	1 11/16	7/32	....	.....	.....	.....	.....	.....	.....	.....	27	3½	1/4	1	43	2¾	1/4	2	136	36
Garford 25-1¼—1920	3	7/32	1¼	....	....	.....	.....	.....	.....	37 1/16	1	....	11¾	3½	1/4	4	11¾	3¼	1/4	4	108	34
Garford 70H-2—1920	4	¼	1¼	....	....	.....	.....	.....	.....	34 1/16	2	....	13 1/16	3½	1/4	4	13 1/16	3½	1/4	4	121	34
Garford 77D-3½—1920	4	¼	1¼	....	....	.....	.....	.....	.....	39	2	....	15⅝	3¾	1/4	4	15⅝	3¾	1/4	4	144	36
Garford 77C-3½—1920	3	¼	1¼	....	....	.....	.....	.....	.....	42	1½	....	15⅝	3¾	1/4	4	15⅝	3¾	1/4	4	150	32
Gafrord 68-5—1920	3	¼	1½	....	....	.....	.....	.....	.....	42	1½	....	10½	4	3/8	2	21⅝	4	1/4	4	150	32
Garford 68D	4	¼	1½	....	....	.....	.....	.....	.....	41 1/16	2	....	17¾	4	1/4	4	17¾	4	1/4	4	150	36
Gary GT-1½	4	¼	1¼	3/8	....	10	2	12	1¼	32	1¼	F	24	3¼	1/4	2	24	3¼	1/4	2	120	34
Gary J-2½	4	¼	1¼	3/8	....	10	2	12	1¼	33	2	F	27	3½	1/4	2	27	3½	1/4	2	120	34
Gary K-3½	4	¼	1¼	3/8	....	13½	2	18	1¼	35	2	F	32	3¾	1/4	2	32	3¾	1/4	2	148	36¾
Gary M-5	4	¼	1½	3/8	....	12	2	16	1¼	37	2	F	36½	4	1/4	2	36½	4	1/4	2	168	39
Gersix K-2½—1920	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	....	20	2½	1/4	4	47	2¼	1/4	2	131	34
Gersix M-1½—1920	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	....	46	2	1/4	2	46	2	1/4	2	114	32
Gersix L-3½	4	¼	1¼	1¼	H	13½	2	16	1¼	36	2	....	56	2½	1/4	2	56	2½	1/4	2	144	36½
Giant 15A-1½	3	7/32	1	.....	....	.....	.....	.....	.....	.....	.....	.....	19	2	1/4	4	19	2	1/8	4	116½	32
Giant 16-2½	3	7/32	1¼	....	....	.....	.....	.....	.....	.....	.....	.....	45½	2	1/4	2	45½	2	1/8	2	140½	33
Giant 17-3½	3	7/32	1½	....	....	.....	.....	.....	.....	.....	.....	.....	56½	2½	1/4	2	46½	2½	1/4	2	183½	36

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
G.M.C. K-15	4	1/8	1 1/4	1 5/8	V	8 3/4	1 1/2	8 1/16	1 1/2	33 5/8	2 1/2	V	.....	2 1/8	1/8	2	.....	2 3/8	1/8	2	89	.....
G.M.C. K-16	4	1/8	1 1/4	1 5/8	V	8 3/4	1 1/2	8 1/16	1 1/2	33 5/8	2 1/2	V	.....	2 1/8	1/8	2	.....	2 3/8	1/8	2	89	.....
G.M.C. K-41	4	1/4	1 1/4	1 5/8	V	10 1/8	1 3/4	9 1/2	1 3/4	37 1/8	2 1/2	V	13	3 1/2	1/4	4	13	3 1/2	1/4	4	Opt	Opt
G.M.C. K-71	4	1/4	1 1/4	1 5/8	V	11 3/4	1 3/4	9 1/2	1 3/4	37 1/8	2 1/2	V	15 1/8	3 3/4	1/4	4	15 1/8	3 3/4	1/4	4	Opt	Opt
G.M.C. K-101	4	1/4	1 1/4	1 5/8	V	11 3/4	1 3/4	9 1/2	1 3/4	37 1/8	2 1/2	V	17 3/4	4	1/4	4	17 3/4	4	1/4	4	Opt	Opt
Gramm-Bernstein 10—1920	3	1/8	1	1 1/2	H	.....															97	30
Gramm-Bernstein 15-1½—1920	3	1/8	1	1 1/2	H	10 1/4	2	6	2	39	1 1/4	F	48 1/2	2	1/8	2	45 7/8	1 1/2	1/8	2	120	32
Gramm-Bernstein 15-1½—1920	3	1/8	1	1 1/2	V	10 1/4	2	6	2	39	1 1/4	F	19 3/4	1 3/4	1/8	4	19 3/4	1 3/4	1/8	4	120	32
Gramm-Bernstein 65-1½ -1920	3	1/8	1	1 1/2	V	4 1/2	1 1/2	12	1 1/2	32	2	F	45	2	1/8	4	45	2	1/8	4	126	32 1/8
Gramm-Bernstein 20-2—1920	3	1/8	1 1/4	1 1/2	V	4 1/2	1 1/2	12	1 1/2	32	2	F	22 3/4	2 1/4	1/4	4	22 3/4	2 1/4	1/4	4	129 3/4	36
Gramm-Bernstein 25-2½—1920	3	1/4	1 1/4	1 1/2	V	11	1 1/2	9	1 1/2	33 3/4	2	F	22 3/4	2 1/4	1/4	4	22 3/4	2 1/4	1/4	4	129 3/4	36
Gramm-Bernstein 30	3	1/4	1 1/4	1 1/2	.....	.....							28 3/4	2 3/4	1/4	4	28 3/4	2 3/4	1/4	4	144	36
Gramm-Bernstein 35-3½—1920	3	1/4	1 1/4	1 1/2	V	11	1 1/2	9	1 1/2	33 3/4	2	F	32 1/8	2 3/4	1/4	4	32 1/8	2 3/4	1/4	4	162	36
Gramm-Bernstein 50-5—1920	3	1/4	1 1/2	1 3/4	V	23 1/4	2	13 3/4	1 7/8	40 3/4	2	F	11 1/2	3	1/4	4	11 1/2	3	1/4	4	144	38
Hall 2-Worm-2½	3	1/8	.....	.....	.....	8	1 1/4	12 1/2	1 1/4	32	1 1/4	F	15	3 3/4	1/4	4	15	3 3/4	1/4	4	180	39
Hall 3½-Worm	3	1/8	.....	.....	.....	12 1/2	1 3/4	15 1/2	1 1/4	38 1/8	1 1/2	F	18	4	1/4	4	18	4	1/4	4	144	39
Hall 5-Worm	3	1/8	.....	.....	.....	12 1/2	1 3/4	15 1/2	1 1/4	38 1/8	1 1/2	F	18	4	1/4	4	18	4	1/4	4	144	39
Hall 7-Chain	3	1/8	.....	.....	.....	12 1/2	1 3/4	15 1/2	1 1/4	38 1/8	1 1/2	F	18	4	1/4	4	18	4	1/4	4	144	39
Harvey WEA-1½—1919-20	4	1/4	.....	.....	.....	.....							46	2	1/4	2	46	2	1/4	2	120	32
Harvey WFA-2½—1919-20	4	1/4	.....	.....	.....	.....							52	2 1/4	1/4	2	52	2 1/4	1/4	2	126 1/2	32
Harvey WHA-3½—1919-20	4	1/4	.....	.....	.....	.....							56	2 1/2	1/4	2	56	2 1/2	1/4	2	144	35
Harvey WKA-5—1919-20	4	1/4	.....	.....	.....	.....							69	3	1/8	2	69	3	1/8	2	144	35
Hawkeye K-1½—1918-20	4	1/8	1 1/4	1 1/2	.....	11	2 1/2	9	1 1/4	.....	2	F	48	2	1/8	2	47	1 1/2	1/8	2	112	34
Hawkeye M-2—1919-20	4	1/8	1 1/4	1 1/2	.....	11	2 1/2	9	1 1/4	.....	2	F	54	2 1/2	1/8	2	52	2	1/8	2	112	34
Hendrickson I-2½	3	1/4	1 1/4	1/8	.....	.....							12	3 1/2	1/8	4	12	3 1/2	1/8	4	Opt	32 1/2
Hendrickson J-3½	3	1/4	1 1/4	1/8	.....	.....							16	3 3/4	1/8	4	16	3 3/4	1/8	4	Opt	36
Hendrickson K-5	3	1/4	1 1/2	1/8	.....	.....							18	4	1/8	4	18	4	1/8	4	Opt	38
Highway Knight A	4	1/4	1 1/2	1 3/4	.....	.....							57	2 1/2	1/4	1	57	2 1/2	1/4	1	150	38
Highway Knight B-5	4	1/4	1 1/2	1 3/4	.....	.....							69	3	1/4	1	69	3	1/4	1	150	38
Higrade A18-1—1918-19	3	1/8	1	1	V	9	2	7	2	32	1/2	R	12	1 1/2	1/4	2	12	1 1/2	1/4	2	85	32
Higrade B20-1½—1919-20	3	1/8	1 1/8	1 1/8	V	9	2	7	2	32	1/2	R	18	2	1/4	2	18	2	1/4	2	100	32
Hoover 15B-1	3	1/8	1	1 3/4	.....	.....							16	1 3/4	1/8	2	16	1 3/4	1/8	2	82	35 1/2
Hoover 20A-1½	3	1/8	1	1 3/4	.....	.....							19	2	1/8	2	10	2	1/8	2	105	33
Huffman B-1½—1919-20	3	1/8	1	1/8	.....	.....							44	2 1/4	1/8	2	44	1 1/2	1/8	2	123	32
Huffman C-1½—1919-20	3	1/8	1	1/8	.....	.....							46	2 1/2	1/8	2	44	2 1/4	1/8	2	123	32
Hurlburt A1½-2	3	.....	1 1/4	1	.....	.....							22	2	1/4	2	22	2	1/4	2	132	35 1/2
Hurlburt B2½	3	1/8	1 1/4	1	.....	.....							24	2 1/2	1/4	2	23	2 1/2	1/4	2	154	34
Hurlburt C3½-4	3	1/4	1 1/2	1 1/4	.....	.....							26	3	1/4	2	25	3	1/4	2	144 1/2	34
Hurlburt D5-5½	3	1/4	1 1/2	1 1/4	.....	.....							28	3	1/4	2	27	3	1/4	2	144 1/2	34
Indiana 12-1¼—1920	3	1/4	1	.....	.....	17	1 1/4	14	1 1/4	38 1/2	1	.....	17 1/2	2	1/8	8	17 1/2	2	1/8	8	108	32
Indiana 20-2—1920	3	1/4	1 1/4	.....	.....	6	1 1/4	13	1 1/4	26 5/8	1 1/2	.....	44	2	1/4	4	44	2	1/4	4	126	33
Indiana 25-2½—1920	3	1/4	1 1/4	.....	.....	6	1 1/4	13	1 1/4	26 5/8	1 1/2	.....	51	2 1/4	1/4	4	51	2 1/4	1/4	4	138	33
Indiana 35-3½—1920	3	1/4	1 1/4	.....	.....	6	1 1/4	13	1 1/4	26 5/8	1 1/2	.....	56	2 1/2	1/4	4	56	2 1/2	1/4	4	144	34 1/2
Indiana 51-5—1920	3	1/4	1 1/2	.....	.....	10	1 1/2	17 1/2	1 1/2	26 5/8	1 1/2	.....	68	3	1/4	4	68	3	1/4	4	156	37 1/2
International S-¾ Speed Truck 1921	3	1/4	1 1/4	1 1/4	V	9 3/4	2 1/4	17 3/4	2 1/4	30 1/4	1	F	38	2	1/8	2	36	2	1/8	2	90	34
International H-¾—1916-21	3	1/4	1 1/4	1 3/4	V	6	1 1/2	3 1/2	1 1/8	38 1/8	1 1/8	F	43 3/4	2 1/4	1/8	2	43 3/4	2 1/4	1/8	2	75 11/16	34
International F-1—1916-21	3	1/4	1 1/4	1 3/4	V	6	1 1/2	3 1/2	1 1/8	38 1/8	1 1/8	F	43 3/4	2 1/4	1/8	2	43 3/4	2 1/4	1/8	2	88 1/16	34
International K-1½—1918-21	3	1/4	1 1/4	1 3/4	V	6	1 1/2	3 1/2	1 1/8	38 1/8	1 1/8	F	50 5/8	2 1/4	1/8	2	50 5/8	2 1/4	1/8	2	91 1/2	34
International G-2—1918-21	4	1/4	1 1/4	1 3/4	V	9	2 1/4	14 1/2	2	.....	.....	.....	50 5/8	2 1/4	1/8	2	50 5/8	2 1/4	1/8	2	118 11/16	34
International L-3½—1920-21	4	1/4	1 1/4	1 3/4	V	9	2 1/4	14 1/2	2	.....	.....	.....	73 1/16	2 1/2	1/8	2	73 1/16	2 1/2	1/8	2	147 5/8	34
Jackson B 3½	3	1/4	1 1/4	1 1/2	V	.....							58 1/2	3 1/2	1/4	2	.....				150	36
J and J D-2—1920	3	1/4	1 1/2	5/8	V	13	1 3/4	15	1 1/4	33	1 1/4	F	50	3	1/4	2	50	2 1/2	1/4	1	80	32
Jumbo 15-1½—1919	4	1/4	.....	1	.....	12 1/2	1 3/4	18	1 1/4	33 3/8	2	F	48 1/2	2	1/8	2	47	1 1/2	1/8	2	120	32
Jumbo 20-2—1919	4	1/4	.....	1	.....	12 1/2	1 3/4	18	1 1/4	33 3/8	2	F	48 1/2	2	1/8	2	47	1 1/2	1/8	2	120	32
Jumbo 25-2½—1917-19	3	1/4	.....	1 1/4	.....	12	2	10	1 1/4	33 1/4	1 1/2	F	49 3/4	3	1/8	2	47 1/2	2 1/2	1/8	2	116	34
Jumbo 30-3—1917-19	3	1/4	.....	1 1/4	.....	12	2	10	1 1/4	33 1/4	1 1/2	F	49 3/4	3	1/8	2	47 1/2	2 1/2	1/8	2	116	34
Jumbo 35-3½—1919	4	1/4	.....	1 1/4	.....	17 3/4	2	21 1/2	1 1/4	36 1/8	2	F	60 1/2	3	1/8	2	58 1/2	2 1/2	1/8	2	144	36
Jumbo 40-4—1919	4	1/4	.....	1 1/4	.....	17 3/4	2	21 1/2	1 1/4	36 1/8	2	F	60 1/2	3	1/8	2	58 1/2	2 1/2	1/8	2	144	36
Kalamazoo G-1½-2	3	1/4	1 1/8	1 1/8	.....	15 1/2	1 1/2	8	1 1/2	40	1 1/2	F	50	2 1/2	1/8	1	.....	2 1/2	1/8	1	120	32 1/2
Kalamazoo H-2½	3	1/4	2 1/8	1 1/8	.....	20	1 3/4	19 1/2	1 1/2	42	2	F	90	2 1/2	1/8	1	48	2 1/2	1/8	1	144	33
Kalamazoo K-3½	3	1/4	2 1/8	1 1/8	.....	20	1 3/4	19 1/2	1 1/2	42	2	F	60	2 1/2	1/8	1	60	2 1/2	1/8	1	152	36
Kankakee-2½—1919-20	3	1/8	1 1/8	1 1/4	H	12 3/4	1 1/2	11	1 1/4	40	3/4	.....	50	3	1/8	1	46 1/2	2	1/8	1	148 1/2	32
Karavan A-2½	4	1/4	1 1/8	1 1/8	.....	11	2 1/4	18	1 1/4	34	2	F	51	2 1/4	1/8	1	51	2 1/4	1/8	1	132	33
Kearns H-¾	3	1/8	1	1/8	V	12	2	12	2	36	3/4	F	42	2	1/8	1	42	2	1/8	1	90	34
Kearns N-1½	3	1/8	1	1/8	H	18	2	18	2	33	1	F	45	2 1/2	1/8	1	45	2 1/4	1/8	1	120	34
Kelly-Springfield K31 1½	4	1/4	1	1/8	V	7	1 1/8	13	1 1/2	54 1/2	1	V	16 3/4	1 7/8	1/8	4	16 3/4	1 7/8	1/8	4	141	34
Kelly-Springfield K34 1½	4	1/4	1	1/8	V	7	1 1/8	13	1 1/2	54 1/2	1	V	42 5/8	2	1/4	2	42 5/8	2	1/4	2	141	34
Kelly-Springfield K35 2½	4	1/4	1	1/8	V	7	1 1/8	13	1 3/4	55 1/2	1	V	16 3/4	1 7/8	1/4	4	16 3/4	1 7/8	1/8	4	141	34
Kelly-Springfield K36 2½	4	1/4	1	1/8	V	7	1 1/8	13	1 3/4	55 1/2	1	V	48 7/8	2 1/4	1/4	4	48 7/8	2 1/4	1/4	4	141	34
Kelly-Springfield K40 3½	4	1/4	1 1/4	1/8	V	7	1 5/8	23	1 1/2	62 1/8	1	V	21	2 1/8	1/8	4	21	2 3/8	1/8	4	145	38
Kelly-Springfield K41 3½	4	1/4	1 1/4	1/8	V	7	1 5/8	23	1 1/2	62 1/8	1	V	3 1/16	4 1/2	1/4	12	58	2 1/2	1/8	2	144	36
Kelly-Springfield K42 3½	4	1/4	1 1/4	1/8	V	2	1 5/8	23	1 1/2	62 1/8	1	V	27 1/2	2 3/4	1/4	8	27 1/2	2 3/4	1/4	4	144	36
Kelly-Springfield K 50-5	4	1/4	1 1/4	1/8	V	8	1 11/16	23	1 11/16	60 5/8	1	V	21	2 1/8	1/8	4	21	2 3/8	1/8	4	145	38
Kelly-Springfield K60-6	4	1/4	1 1/4	1/8	V	8	1 11/16	23	1 11/16	60 5/8	1	V	21	2 1/8	1/8	4	21	2 3/8	1/8	4	145	38
Keystone 40-2—1919-20	3	1/4	1	1/8	V	8	2 1/8	8	2 1/8	38	1	F	50 1/2	3	1/8	1	46 3/4	2	1/8	1	124	33
Kimball AB-2	3	1/4	1 1/4	1 1/4	V	.....				42	2	F	50	2 1/4	1/4	4	33	3 1/2	1/4	1	135	34
Kimball AC-2½	3	1/4	1 1/4	1 3/4	V	.....				42	2	F	52	2 1/2	1/4	4	33	3 1/2	1/4	1	152	34
Kimball AK3	3	1/4	1 1/2	1 3/4	V	.....				42	2	F	52	2 1/2	1/4	4	33	3 1/2	1/4	1	152	34
Kimball AE-4	3	1/4	1 1/2	1 3/4	V	.....				42	2	F	58	3	1/4	2	58	3	1/4	2	171	36
Kimball AF-5	3	1/4	1 1/2	1 3/4	V	.....				42	2	F	65	3	1/4	2	65	3	1/4	2	171	36
King-Zeitler 1½—1919-20	3	1/8	1	1 1/4	.....	.....							48	3 1/4	1/4	4	48	3 1/4	1/4	4	Opt	32
King-Zeitler 2½—1919-20	3	1/8	1	1 1/4	.....	.....							54	3 1/2	1/4	4	54	3 1/2	1/4	4	Opt	32
King-Zeitler 3½—1919-20	3	1/8	1 1/4	1 1/4	.....	.....							64	3 3/4	1/4	4	63	3 3/4	1/4	4	Opt	36
Kissel-Utility 1½—1917-20	3	1/8	.....	1 1/4	.....	12 1/4	1 3/4	10	1 1/2	46 3/4	2	F	19	2	1/4	4	19	2	1/4	4	120	34
Kissel-Freighter-2—1917-20	3	1/8	.....	1 1/4	.....	12 1/4	1 3/4	10	1 1/2	49	2	F	14	3 1/2	1/4	4	14	3 1/2	1/4	4	144	34
Kissel-Heavy-Duty-3½—1917-20	3	1/8	.....	1 1/4	.....	13 3/4	1 3/4	10	1 1/2	52 1/4	2	F	56	2 1/2	1/8	2	56	2 1/2	1/8	2	156	36
Kissel-Goliath-5—1919-20	3	1/8	.....	1 1/4	.....	.....				55	2	F	56	2 1/2	1/8	2	56	2 1/2	1/8	2	168	36
Kleiber 1	3	1/8	1 1/4	1 1/4	.....	13	1 1/2	16	1 1/4	36	3/4	.....	12	3 1/2	1/4	4	12	3 1/2	1/4	4	120	34
Kleiber 1½	3	1/8	1 1/4	1 1/4	.....	13	1 1/2	16	1 1/4	38	1 1/4	.....	45	2	1/4	4	45	2	1/4	2	132	34
Kleiber 2	3	1/8	1 1/4	1 1/4	.....	13	1 1/2	16	1 1/4	40	1 1/4	.....	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	34
Kleiber 2½	3	1/8	1 1/4	1 1/4	.....	13	1 3/4	16	1 1/4	40	1 1/4	.....	52	2 1/4	1/4	4	52	2 1/4	1/4	2	150	34
Kleiber 3½	3	1/8	1 1/4	1 1/4	.....	13	1 3/4	16	1 1/4	40	1 1/4	.....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	156	38
Kleiber 5	4	1/4	1 1/2	1 3/4	.....	13	1 3/4	16	1 1/4	43	1 1/4	.....	18	4	4	4	18	4	1/4	4	168	38
Koehler C 1¼—1919-20	3	1/8	1	1/4	.....	.....							47	2 1/2	1/8	2	46	2 1/4	1/8	2	108	34
Koehler M 2½—1919-20	4	1/8	1 1/4	1/8	.....	.....							13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	34
Lange 2	3	1/8	1	1 1/8	.....	8	2 1/16	11	1 11/16	32	3/4	.....	30	2	1/4	2	18	3	1/4	4	114	37
Larrabee-Deyo U-1½—1919-20	3	1/8	1	.....	V	9	2	9	2	38	3/8	V	48	2	1/4	2	48	2	1/4	2	108	34
Lar-Deyo A,B 18-19 & L-'20-3½	3	1/8	1 1/4	.....	V	9	1 1/2	6	1 1/4	36	1 1/2	.....	60	2 1/2	1/4	2	60	2 1/2	1/4	2	168	36
Lar.-Deyo C,D'18-19 & K'20-2½	3	1/8	1 1/4	.....	V	8 1/2	2	17 1/2	2	44	2	F	54	2 1/4	1/4	2	54	2 1/4	1/4	2	150	36
Larrabee-Deyo W-5—1920	3	1/16	1 1/2	.....	V	6	1 1/4	6	1 1/4	36	1 1/4	F	72	3	1/4	2	72	3	1/4	2	152	36

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Larrabee Deyo T--1918–19	3	3/16	1 1/4	....	V	9	1 1/2	6	1 1/4	36	1 1/2	F	72	3	1/4	2	72	3	1/4	2	157	36
L. M. C.-2½—1919–20	3	1/16	1 1/16	1 5/8	V	10	1 1/2	14	1 1/4	35	1 1/4	F	55	3	1/16	2	50 1/2	2	1/16	2	143	32
Lombard 140 H.P.	6																				120	79
Lombard 50 H.P.	4																				79	64
Luedinghaus K2—1919–20	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/2	2	38 1/2	2 1/2	1/4	2	120	34
Luedinghaus K2-LS—1920	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/4	2	38 1/2	2 1/2	1/4	2	145 1/2	34
Luverne BBL-2	3	1/16	1 1/4	....	....	....	....	....	....	....	....	....	....	2 1/2	1/4	2	.....	2 1/2	1/4	2	108	34
Maccar L-1½--1915–20	3	1/16	1 1/4	3/8	V	3 1/4	1 1/2	10	1 1/4	30 3/4	3/4	F	11 1/16	3 1/4	1/4	4	11 1/16	3 1/4	1/4	4	128 1/8	34
Maccar H-2½—1915–20	3	1/16	1 1/4	3/8	V	3 1/2	1 3/4	13	1 1/4	30 3/4	3/4	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	143 5/8	34
Maccar M2-3½–1920	3	1/16	1 1/4	3/8	V	8	1 3/4	13 1/2	1 1/2	37 1/2	2	F	15 1/8	3 1/4	1/4	4	15 1/8	3 1/4	1/4	4	155 7/8	34
Maccar G-5—1919–20	3	1/4	1 1/4	3/8	V	10 1/2	2	20 1/2	2	40 3/4	2	F	17 3/4	4	1/4	4	17 3/4	4	1/4	4	167	37 1/2
Mack AB1½, 2-Ton-Chain '16-20	4	3/16	1 1/4	1/4	....	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	Opt	33 1/4
Mack Dual Reduction 1921	4	3/16	1 1/4	1/4	....	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	18 1/4	3 1/2	1/4	4	12	6	1/4	2	Opt	33 1/2
Mack AB-Tractor 5 Ton—16–20	4	3/16	1 1/4	1/4	....	9 1/2	1 1/2	4 3/4	1 1/2	33	1 1/2	F	12 1/4	4	1/4	2	16 1/2	2 1/2	1/4	4	77	33 1/2
Mack AC 3½ to 7½ ton—'16–20	4	1/4	1 1/2	1/4	....	5 3/4	2 1/4	4 3/4	1 1/2	.....	1	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	Opt	37 1/2
Mack AC Trac. 7 to 15 Ton—'16–20	4	1/4	1 1/2	1/4	....	5 3/4	2 1/4	4 3/4	1 1/2	.....	1	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	87	37 1/2
Master JJ-1¼—1919–20	3	1/16	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/4	34 1/2
Master JW-1½—1919–20	3	1/16	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	117 3/4	34 1/4
Master M-2½--1916–20	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/8	34
Master O 2½--1917–20	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	156 3/8	34
Master W-2½—1916–20	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	117 3/8	34
Master WL 2½—1917–20	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	156 3/8	34
Master D-2½--1920	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	8 5/8	4 1/2	1/8	2	54 1/16	3	1/16	2	117 3/8	34
Master DL-2½—1920	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	8 5/8	4 1/2	1/16	2	54 1/16	3	1/16	2	156 3/8	34
Master T-6 Tractor—1917–20	3	1/4	1 1/4	2	H	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	72 1/8	34
Master A-3½—1918–20	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/4	33	1 1/2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	147 3/4	36 3/4
Master AL-3½—1918–20	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/4	33	1 1/2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	183 3/4	36 3/4
Master E-3½—1920	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/4	33	1 1/2	F	11	6	1/4	2	25	4	1/4	4	147 3/4	36 3/4
Master EL-3½—1920	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/4	33	1 1/2	F	11	6	1/4	2	25	4	1/4	4	183 3/4	36 3/4
Master-B 5—1919–20	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/2	35	2	F	18	4	1/4	2	18	4	1/4	2	162 7/8	39
Master BL-5—1919–20	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/2	35	2	F	18	4	1/4	2	18	4	1/4	2	186 7/8	39
Master F-5—1920	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/2	35	2	F	11	6	1/4	2	25	4	1/4	4	162 7/8	39
Master FL-5—1920	4	1/4	1 1/2	1 3/4	H	13 1/2	2	15	1 1/2	35	2	F	11	6	1/4	2	25	4	1/4	4	186 7/8	39
Maxwell 1½—1917–20	3	1/16	1	....	....	.....	.....	.....	.....	.....	.....	.....	16	1 3/4	1/16	4	16	1 3/4	1/16	4	102	36
Menominee HT-1—1918–20	3	1/4	1	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	8	.....	.....	.....	.....	104	32
Menominee H-1½—1916–20	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	13 1/2	3 1/2	1/4	8	.....	.....	.....	.....	122	32
Menominee D-2—1915–20	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	13 1/2	3 1/2	1/4	8	.....	.....	.....	.....	146	32
Menominee G-3½—1916–20	3	1/4	1 1/2	2	....	.....	.....	.....	.....	.....	.....	.....	16	3 1/2	1/4	8	.....	.....	.....	.....	149	36
Menominee J-5—1917–20	3	1/4	1 1/2	2	....	.....	.....	.....	.....	.....	.....	.....	18 1/2	4	1/4	8	.....	.....	.....	.....	149	38
Menominee Ht-1—1920-late	3	1/4	1	1 1/2	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/16	2	33 1/4	2 1/2	1/16	2	104	32
Menominee H-1—1920-late	3	1/4	1	1 3/4	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/16	2	33 1/4	2 1/2	1/16	2	122	32
Menominee D-2—1920-late	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 1/2	37 3/4	2	F	57 1/2	2 1/2	1/16	2	42 1/4	2 1/2	1/16	2	146	32
Menominee G-3½—1920–late	3	1/4	1 1/2	2	....	3	1 3/4	3	1 1/2	37 3/4	2	F	57 1/2	2 1/2	1/16	2	42 1/2	2 1/2	1/16	2	149	36
Menominee J-5—1920 late	3	1/4	1 1/2	2	....	3	1 3/4	3	1 3/4	38	2	F	69 1/16	3 1/2	1/16	2	52	2 1/2	1/16	2	149	38
Moreland 20N—1919–20	3	3/16	1 1/4	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	11	3	1/4	4	11	3	1/4	4	120	34
Moreland 20B-1½—1919–20	3	3/16	1 1/4	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	12	3 3/4	1/4	4	12	3 1/4	1/4	4	132	34
Moreland 20C-2½—1919–20	3	3/16	1 1/2	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	158	34
Moreland 20G-4—1919–20	3	1/4	1 1/2	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	38
Moreland 20J-5—1919–20	3	1/4	1 1/2	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	18	4	1/4	4	18	4	1/4	4	168	38
Mutual 2B—1919–20	3	1/4	1 1/16	1 1/4	V	19	1 3/4	17	1 1/2	37 5/8	2	F	51	2 1/4	1/4	2	51	2 1/4	1/4	2	128 3/4	34
Mutual 2BP—1919–20	3	1/4	1 1/16	1 1/4	V	19	1 3/4	17	1 1/2	37 5/8	2	F	51	2 1/4	1/4	2	51	2 1/4	1/4	2	128 3/4	34
Napoleon 9-1—1919–20	3	1/4	1	1/16	V	6	2 1/4	12	2	36	1	F	44	2	1/16	1	30	2 1/2	1/16	1	101	35 3/4
Napoleon 11-1½—1919–20	3	1/4	1	1/16	V	6	2 1/4	12	2	36	1	F	49	2	1/16	1	30	2 1/2	1/16	1	101	35 3/4
Nash 2018-1—1919–20	4	1/4	1 1/4	1 1/4	....	3	1 1/2	7 3/4	1 1/4	36	1	F	49 1/8	2	1/16	2	20 7/16	2 1/2	1/16	1	104 1/2	30 1/2
Nash 3018-2—1919–20	4	1/4	1 1/4	1 1/4	....	3	1 1/2	.....	.....	44	1	F	50 5/8	3	1/16	2	20 1/8	2 1/2	1/16	1	118 1/4	31 5/8
Nash 4017-2—1919–20	3	1/4	1 1/4	1 1/4	....	7	1 1/2	.....	.....	44	2	F	49 1/4	2 1/2	1/4	4	25 1/16	2 1/2	1/4	1	117 1/8	38 1/8
Nelson & LeMoon F1	3	1/16	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon F1½	3	1/16	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon F2	3	1/16	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon F3½	3	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	16 1/2	3 3/4	1/4	2	16 1/2	3 3/4	1/4	2	Opt	.....
Nelson & LeMoon F5	4	1/4	1 1/2	1/16	....	.....	.....	.....	.....	.....	.....	.....	18	4	1/4	2	18	4	1/4	2	Opt	.....
Netco D-2	3	1/16	1 1/4	1 1/16	V	6 1/2	1 1/2	13 1/2	1 1/4	28 7/8	1 1/4	F	12	3 1/2	1/4	4	12	3 1/2	1/4	4	Opt	34 1/4
Netco H-2½	3	1/16	1 1/2	1 1/16	V	9	1 1/2	16	1 1/4	30 1/8	1 1/2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	123	34 1/4
Niles E-2	3	1/16	1 3/4	1 3/4	....	8	1 1/4	11	1 1/4	30	3/4	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	147	.....
Noble B30-1½—1918–20	4	1/16	1	1 1/16	....	16 1/2	1 1/4	7	1 7/8	34 1/4	1 7/8	....	43	2	1/4	2	43	2	1/4	2	136	34
Noble C40-2—1919–20	4	1/4	1 1/4	1 1/16	....	12	1 1/4	9	2	34 1/4	1 7/8	....	43	2	1/4	2	43	2	1/4	2	148	34
Noble D50-2½—1919–20	4	1/4	1 1/4	1 1/16	....	12	1 1/4	9	2	34 1/4	1 7/8	....	51	2 1/4	1/4	2	51	2 1/4	1/4	2	172	34
Noble E70-3½—1919–20	4	1/4	1 1/4	1 1/16	....	16	1 1/4	14 1/2	2	34 1/4	1 7/8	....	57	2 1/2	1/4	2	57	2 1/2	1/4	2	172	36
Northway B-2	3	1/16	1 1/16	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	31	5/8	V	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	118	33
Northway B-3	3	1/16	1 1/16	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	31	5/8	V	54	2 1/2	1/4	2	54	2 1/2	1/4	2	173	34 5/8
Norwalk 35E Special	3	1/16	1/16	1/16	....	.....	.....	.....	.....	.....	.....	.....	17	2 1/4	1/16	2	17	1 1/2	1/16	2	123	34 1/8
O. K.-1½—1920	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	36	2	F	53	2 1/2	1/16	2	38	2 1/2	1/16	2	117	34
O. K.-2½—1920	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1	36	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	121	35
O. K. 3½—1920	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	38	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	133	34
Old Hickory W-1—1919	3	1/16	1 3/8	1	....	7	2	11 1/2	2	37 1/2	3/4	V	24	2 1/4	1/4	2	24	2 1/4	1/4	2	120	36
Old Reliable A-1½—1918–20	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	48	2 1/2	1/4	1	48	2 1/2	1/4	1	105	32
Old Reliable B-2½—1918–20	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	54	2	1/4	1	54	2	1/4	1	144	32
Old Reliable C-3½—1918–20	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	60	2 1/2	1/4	1	60	2 1/2	1/4	1	150	32
Old Reliable D-5—1918–20	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	72	3	1/4	1	72	3	1/4	1	156	34
Old Reliable K. L. M.-7—1918–20	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	54	3 1/2	1/4	1	60	4	1/4	1	158	36
Oldsmobile T-1—1921	3	1/16	1 1/16	1 3/8	V	5	1 1/4	11	1 1/4	32 3/8	2 1/32	V	42 1/4	2	1/32	1	41 1/16	2	1/32	1	92 5/8	34
Oneida A 9-1¼	3	1/16	1	....	H	7 1/2	1 1/4	9 1/2	1 1/4	36	2	....	48	2 1/2	1/16	2	34	2 1/2	1/16	2	106	34
Oneida B 9-1¾	3	1/16	1 1/4	....	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	2	....	48	2 1/2	1/16	2	34	2 1/2	1/16	2	114	34
Oneida C 9-2½	3	1/16	1 1/4	....	H	9 1/4	1 1/4	9 1/2	1 1/4	38 1/2	2	....	58	2 1/2	1/16	2	43	2 1/2	1/16	2	138	34
Oneida D 9-3½	3	1/4	1 1/4	....	H	7	1 1/2	9 1/2	1 1/2	40	2	....	16	4	1/16	4	16	4	1/16	4	157	36
Oneida E 9-5	3	1/4	1 1/4	....	H	7 1/2	1 3/4	9 1/2	1 1/2	40	2	....	18	4	1/16	4	18	4	1/16	4	177	38
Oshkosh A-2	3	1/16	1 1/4	2	....	.....	.....	.....	.....	.....	.....	.....	23 5/8	3	1/4	1	43 7/16	2 1/2	1/16	2	108 5/8	34
Oshkosh AA-2	3	1/16	1 1/4	2	....	.....	.....	.....	.....	.....	.....	.....	23 5/8	3	1/4	1	43 7/16	2 1/2	1/16	2	143 5/8	34
Packard EC	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	3/4	V	7 11/16	4 3/4	1/4	2	14	2	1/4	4	132	31 3/4
Packard ED	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	3/4	V	9 1/16	4 3/4	1/4	2	18 3/4	3	1/4	4	144	39
Packard EF	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	3/4	V	9 1/16	6 1/2	1/4	2	18 3/4	3 1/2	1/4	4	144	39
Packard EX	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	3/4	V	9 1/16	6 1/2	1/4	2	14	2	1/4	4	132	31 3/4
Paige 54-20-2½	2	1/4	....	1 1/4	....	10 1/2	1 1/2	10 1/2	1 1/2	37 5/8	1 1/4	F	49 5/8	2 1/4	1/4	2	49 5/8	2 1/4	1/4	2	126	33
Paige 51-18-3½	3	1/4	....	1 1/4	....	13	1 1/2	13	1 1/2	37 5/8	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	35
Paige 52-19-1½	3	1/16	....	1 1/4	....	8	1 1/4	12	1 1/4	36	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	126	33
Parker F20-2—1920	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16 1/2	1 1/2	38	2	F	10 3/4	5	1/4	2	19	2 1/2	1/4	4	127	33
Parker J20-3½--1920	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16 1/2	1 1/2	38	2	F	10 3/4	5	1/4	2	19	3 1/2	1/4	4	139 1/2	33
Parker M20-5—1920	3	1/4	1 1/2	1 3/4	V	14	1 3/4	18	1 3/4	39 1/2	2	F	10 3/4	5	1/4	2	24 1/2	4	1/4	4	145	37
Patriot Lincoln 2	3	1/16	1 1/16	1 11/16	....	9	1 1/4	11 1/2	1 1/4	36 1/16	2	F	41	1 3/4	1/4	2	41	1 3/4	1/4	2	112	34

Replacement Table—Continued

Name, Model and Tonnage	ENGINE											BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Patriot Revere-1	3	1/8	1 1/16	1 1/16	....	7 3/4	2	8 3/4	2	38	1 1/4	F	41	1 3/4	1/4	2	41	1 3/4	1/4	2	92 1/2	33 1/4
Patriot Washington-3	3	1/4	1 1/16	1 1/16	....	10	1 1/2	12	1 1/2	38 3/4	2	F	55	2 1/4	1/4	2	55	2 1/4	1/4	2	150	34
Pierce Arrow-2-X-5	3	1/8	1 1/16	1 5/8	V	16 3/8	2	14 1/4	1 3/8	43 1/2	1 1/2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	125 1/16	34 1/8
Pierce Arrow-3½-W-2	3	1/8	1 1/16	2 3/32	V	11	2	15 1/2	1 3/4	43 1/2	1 1/2	F	9 11/16	6	1/4	2	18	4 3/4	3/32	4	133 1/4	38 1/8
Pierce Arrow-5-R-10	3	1/8	1 1/16	2 3/32	V	11	2	15 1/2	1 3/4	43 1/2	1 1/2	F	9 11/16	6	1/4	2	20 11/32	4 3/4	3/32	4	139 1/4	38 1/8
Pittsburgher 2½— 1919–20	3	1/8	1 1/4	1 1/4	V	6	1 1/2	12	1 1/4	37	1	....	44	2 1/4	1/4	2	44	2 1/4	1/4	2	136	33
Rainier R-8-2	3	1/8	1 1/16	3/32	....	5	1 1/2	13	1 1/2	31 1/2	1 1/4	F	44 1/2	2	1/4	1	44 1/2	2	1/4	1	.....	34
Rainier R6-1½	3	1/8	1 1/16	3/32	....	9 3/4	1 1/2	14 3/4	1 1/2	41	1 1/2	F	19	2	1/8	2	19	2	1/8	2	113	33
Rainier R-9-1	3	1/8	1 3/32	3/32	....	8 1/2	1 1/2	14	1 1/2	41	1 1/2	F	19	2	1/8	2	19	2	1/8	2	98	37
Rainier R11-¾	3	1/8	1 1/16	3/32	....	9	1 1/2	14 1/2	1 1/2	42	1 1/2	F	11 1/4	3	1/8	2	11 1/4	3	1/8	2	88	37
Reliance 10A-1½—1920	4	1/4	1 1/4	3/8	V	10 1/2	2	13 1/2	1 3/8	35	2	F	17	2	1/8	4	17	2	1/8	4	122	32
Reliance 20B-2½—1920	4	1/4	1 1/4	3/8	V	10 1/2	2	13 1/2	1 3/8	35	2	F	17	2	1/8	4	17	2	1/8	4	127	32
Reo F—1500-2500-lbs	3	1/8	1	1	V	5 1/2	1	5 1/2	1	39 1/2	7/8	F	43	2 1/4	1/8	1	39 5/8	2	1/8	1	82	30
Republic 10-1—1919–20–21	3	1/8	1	....	V	12 1/4	2	6	2	40 1/16	1 1/4	F	20 1/4	2 1/2	11/32	4	19 3/4	2 1/4	1/8	4	98	34
Republic 11X-1½—1919–20–21	3	1/8	1	....	V	12 1/4	2	6	2	40 1/16	1 1/4	F	54 1/8	2 1/2	1/8	2	24 1/4	2 1/4	1/8	4	118	34
Republic 19-2½—1919–20–21	3	1/8	1 1/4	....	V	8	1 1/2	11 3/4	1 1/4	32 1/2	1 1/4	F	54 1/8	2 1/2	1/8	2	24 1/4	2 1/4	1/8	4	121	34
Republic 20-3½—1919–20–21	3	1/8	1 1/4	....	V	7 1/4	1 3/4	11 3/4	2 3/4	36 1/4	1 1/2	F	55 3/4	3 1/2	1/8	2	30 11/16	4 1/2	1/8	1	146	37
Reynolds 3A-1½	3	1/8	1 1/4	....	....	....	....	....	....	....	....	....	46	2	1/4	2	46	2	1/4	2	121	33
Reynolds 5A-2½	3	1/8	1 1/4	....	....	....	....	....	....	....	....	....	52 1/2	2 1/4	1/4	2	52 1/2	2 1/4	1/4	2	126	33
Reynolds 7A-3½	3	1/8	1 1/4	....	....	....	....	....	....	....	....	....	57	2 1/2	1/4	2	57	2 1/2	1/4	2	148	37
Reynolds 10A-5	3	1/8	1 1/4	....	....	....	....	....	....	....	....	....	70	3	1/4	2	70	3	1/4	2	148	37
Riker B3, BB-4	5	1/4	....	....	....	....	....	....	....	....	....	....	7 1/4	4 1/2	1/4	2	20	4	1/8	4	150	38
Rowe CW-1¼—1918–19–20	3	1/4	1	1/8	....	10 1/2	1 3/4	10 1/2	1 1/2	32 1/2	1 1/8	F	19	2	1/8	8	19	2	1/8	8	113	33
Rowe CDW2—1916–20	3	1/4	1 1/4	1/8	....	10 1/2	1 3/4	10 1/2	1 1/2	32 1/2	1 1/8	F	45	2	1/4	4	45	2	1/4	4	123	33
Rowe GSW3—1918–20	3	1/4	1 1/4	1/8	....	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F	51 1/2	2 1/2	1/4	4	51 1/2	2 1/2	1/4	4	140	33
Rowe HW4—1918–20	3	1/4	1 1/4	1/8	....	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F	56 1/2	2 1/2	1/4	4	56 1/2	2 1/2	1/4	4	146	36
Rowe FW5—1914–20	3	1/4	1 1/4	1/8	....	20	1 3/4	15 1/2	1 1/2	36 1/4	2	F	68	3	1/8	4	68	3	1/8	4	153	38 1/2
Rowe GPW3—1916-17, 1919–20	3	1/8	1 1/4	1/8	....	10	1 1/4	6	1 3/4	....	....	....	....	....	....	....	....	....	....	....	152	33
Sandow G-1—1918–20	3	1/8	1	1/8	....	....	....	....	....	....	....	....	20	2	1/8	2	20	2	1/8	2	96	34
Sandow CG-1½1918—20	3	1/8	1	1/8	....	....	....	....	....	....	....	....	20	2	1/8	2	20	2	1/8	2	120	34
Sandow I-2—1918–20	3	1/8	1	1/8	....	....	....	....	....	....	....	....	60	3	1/8	1	60	3	1/8	1	132	32
Sandow J-2½—1918–20	3	1/8	1 1/4	1/8	....	....	....	....	....	....	....	....	13 1/2	3 1/2	1/4	2	16	3 1/2	1/4	2	144	32
Sandow L-5—1918–20	3	1/8	1 1/4	1/8	....	....	....	....	....	....	....	....	24	4 1/2	1/4	2	24	4 1/2	1/4	2	144	37
Sandow M-3½—1918–20	3	1/8	1 1/4	1/8	....	....	....	....	....	....	....	....	18 1/2	4	1/4	2	18 1/2	4	1/4	2	144	37
Sanford 25-2½—1917–20	3	1/8	1 1/4	1 1/4	....	....	....	....	....	....	....	....	51 1/2	2 1/4	1/4	2	51 1/2	2 1/2	1/8	2	144	35
Sanford W35-2½—1917–20	3	1/8	1 1/4	1 1/4	....	....	....	....	....	....	....	....	56	2 1/2	1/4	2	56	2 1/2	1/8	2	145	35
Sanford W50-5—1917–20	3	1/8	1 1/4	1 1/4	....	....	....	....	....	....	....	....	69	3	1/4	2	69	3	1/8	2	145	35
Schacht 2	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	8 1/2	3 1/2	1/4	4	13 1/2	3	1/8	4	140	35 3/4
Schacht 2½	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	8 1/2	3 1/2	1/4	4	13 1/2	3	1/8	4	140	35 3/4
Schacht 3½	4	1/4	1 1/4	....	....	....	....	....	....	....	....	....	8 1/2	3 1/2	1/4	4	13 1/2	3	1/8	4	152	35 3/4
Schacht 5	4	1/4	1 1/4	....	....	....	....	....	....	....	....	....	8 1/2	3 1/2	1/4	4	15	4	3/8	4	152	35 3/4
Selden 1½A—1919–20	3	1/8	1	1 1/16	....	12	2	....	....	41	1 1/4	F	11 11/16	3 1/4	1/8	2	11 11/16	3 1/4	1/8	4	114	34
Selden 2½A—1920	3	1/8	1	1 1/16	....	3 3/4	1 1/4	12	1 1/4	31	1 1/2	F	13 5/8	3 1/2	1/8	2	13 5/8	3 1/2	1/8	4	134	34
Selden 3½A—1919–20	3	1/8	1 1/4	1 1/16	....	9	1 3/4	5 1/2	1 3/4	34 1/2	2	F	15 3/4	3 3/4	1/8	2	15 3/4	3 3/4	1/8	4	153	37 1/2
Selden 5A—1920	3	1/4	1 1/2	1 1/16	....	7	2	20 1/2	2	40 3/8	2	F	18	4	1/8	2	18	4	1/8	4	153	37 1/2
Service 220-1—1919–20	3	1/8	1 1/16	1 1/16	....	10	2	6	1 3/4	37 3/4	1	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	109 1/2	34
Service 31-1½—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	8	1 1/4	33	1 1/4	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	121 1/16	34
Service 36-1½—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	8	1 1/4	33	1 1/4	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	121 1/16	34
Service 51-2½—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	8	1 1/4	33	1 1/4	F	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	131 1/2	34
Service 71-3½—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	8	1 1/4	33	1 1/4	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	150 1/4	38
Service 76-3½—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	10	1 1/4	38 1/4	1 1/2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	145 3/4	38
Service 101-5—1919–20	4	1/4	1 1/16	1 1/16	....	10	2	10	1 1/4	38 1/4	1 1/2	F	18 1/2	4	1/4	2	18 1/2	4	1/4	2	145 3/4	38
Shaw M2—¾	....	....	1	1/16	....	....	....	....	....	....	....	....	49	2 1/2	1/4	2	45	2 1/2	1/4	2	60	43
Shaw M4-1	....	....	1	1/16	....	....	....	....	....	....	....	....	11	3	1/4	4	11	3	1/4	4	92	32
Signal NF-1	4	1/8	....	....	....	....	....	....	....	....	....	....	11	3	1/4	4	11	3	1/4	4	120	.....
Signal H 1½	3	1/8	1 1/16	1 1/16	....	....	....	....	....	....	....	....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	120	34
Signal J-2½	3	1/8	1 1/16	1 1/16	....	....	....	....	....	....	....	....	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	126	34
Signal M 3½	3	1/8	1 1/16	1 1/16	....	....	....	....	....	....	....	....	16	3 3/4	1/4	2	16	3 3/4	1/4	2	168	38
Signal R-5	3	1/4	1 5/8	1 5/8	....	....	....	....	....	....	....	....	18	4	1/4	2	18	4	1/4	2	172	38
Standard I-K-1	3	1/8	1	1 1/8	....	10 1/2	2 1/16	14 3/4	1 1/16	.....	1 1/4	F	10 7/16	3	1/4	4	10 7/16	3	1/4	4	120	32
Standard 76-2½	3	1/8	1 1/4	1 1/16	....	.....	1 5/8	12	1 5/8	.....	1 1/4	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	122	32
Standard 66-3½	3	1/8	1 1/4	1 1/16	....	12	2 1/16	18	1 5/8	.....	1 1/2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	38
Standard 5K-5	3	1/8	1 1/2	1 1/16	....	8	2 1/16	3 1/2	2 3/8	.....	2	F	17 11/16	4	1/4	4	17 11/16	4	1/4	4	144	38
Sterling 1½—1920	3	1/4	1 1/4	1/4	....	11	1 1/2	19	1 1/2	38	1 1/2	....	11 3/4	3 1/4	1/4	4	11 3/4	3 1/4	1/4	4	120	33 1/2
Sterling 2—1920	3	1/4	1 1/4	1/4	....	11	1 1/2	19	1 1/2	38	1 1/2	....	13 3/8	3 1/2	1/4	4	13 3/8	3 1/2	1/4	4	120	33 1/2
Sterling 2½—1920	3	1/4	1 1/4	1/4	....	11	1 1/2	19	1 1/2	38	1 1/2	....	13 3/8	3 1/2	1/4	4	13 3/8	3 1/2	1/4	4	138	34
Sterling 3½—1920	3	1/4	1 1/2	1/4	....	14	1 1/2	22	1 1/2	40 1/2	1 1/2	....	15 3/4	3 3/4	1/4	4	15 3/4	3 3/4	1/4	4	144	38
Sterling 5-Worm...—1920	3	1/4	1 1/2	1/4	....	11	1 1/2	19	1 1/2	40 1/2	1 1/2	....	18	4	1/4	4	18	4	1/4	4	158	38
Sterling 5-Chain	3	1/4	1 1/2	1/4	....	11	1 1/2	19	1 1/2	40 1/2	1 1/2	....	56 1/2	3 1/2	1/4	2	34 11/16	4	1/4	1	158	38
Sterling 7½—1920	3	1/4	1 1/2	1/4	....	11	1 1/2	19	1 1/2	40 1/2	1 1/2	....	56 1/2	3 1/2	1/4	2	34 11/16	4	1/4	1	158	38
Stewart M7-2—1918–20	3	1/8	....	1 1/16	....	....	....	....	....	....	....	....	50 5/8	2	1/8	2	8	5	1/8	2	132 3/4	32
Stewart M12-1—1920	3	1/8	....	1	....	....	....	....	....	....	....	....	41 3/8	2	1/8	2	22 3/4	2	1/8	1	99 1/2	32
Stewar M9–1½—1918–20	3	1/8	....	1	....	....	....	....	....	....	....	....	48 1/2	2	1/8	2	8	5	1/8	2	119 1/4	32
Stewart M10-3½—1918–20	3	1/8	....	1 3/8	....	....	....	....	....	....	....	....	60	3	1/8	2	8	5	1/8	2	139 3/4	32
Stewart M11-¾—1919-20	3	1/8	....	7/8	....	....	....	....	....	....	....	....	41 3/8	2	1/8	2	22 3/4	2	1/8	1	77 1/4	32
Stewart M7X—1920	3	1/4	....	1 1/16	....	....	....	....	....	....	....	....	50 5/8	2	1/8	2	8	5	1/8	2	132 3/4	32
Stewart M10X--1920	3	1/4	....	1 5/8	....	....	....	....	....	....	....	....	60	3	1/8	2	8	5	1/8	2	138	32
Stoughton A-1	4	1/4	1 3/8	1	V	18	1 1/4	15	1 1/4	38 1/2	1 3/4	F	16	1 3/4	1/8	4	16	1 3/4	1/8	4	88	34
Stoughton B-1½	4	1/4	1	1 3/8	V	18	1 1/4	15	1 1/4	39 1/4	1 1/2	F	19	2	1/8	4	19	2	1/8	4	116	34
Stoughton D-2	4	1/8	1 1/4	1 5/8	V	8 1/2	1 1/2	15	1 1/4	42	2	F	45	2	1/8	2	45	2	1/8	2	116	34
Stoughton F-3	4	1/8	1 1/4	1 5/8	V	9 1/2	1 3/4	15	1 1/4	42	2	F	52	2 1/4	1/8	2	52	2 1/4	1/8	2	127	36
Success B-2½	....	....	1 3/8	1/4	....	....	....	....	....	....	....	....	55	2 1/4	1/4	1	55	2 1/4	1/4	1	132	32 1/4
Sullivan E-2—1916–20	3	1/4	1 1/16	1 1/16	....	....	....	....	....	....	....	....	13	3 1/2	1/4	8	13	3 1/2	1/4	8	144	34
Sullivan F-1½—1917–20	3	1/8	1 1/16	1 1/16	....	....	....	....	....	....	....	....	13	3 1/2	1/4	8	13	3 1/2	1/4	8	106	33 1/2
Super.Truck 50—1920	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	51 1/2	2 1/4	1/4	2	51 1/2	2 1/4	1/4	2	.....	.....
Super Truck 70—1920	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	55 1/2	2 1/2	1/4	2	51 1/2	2 1/4	1/4	2	144	.....
Super Truck 100—1920	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	68	3	1/2	2	51 1/2	2 1/4	1/4	2	144	.....
Superior D-1—1919–20	3	1/8	1 1/16	1 1/16	....	11	2	10	2	39	1	F	45	2 1/2	1/8	2	44	2 1/4	1/8	2	97 3/4	34
Superior E-2—1919-20	3	1/8	1 1/16	1 1/16	....	8 1/2	1 1/2	15	1 1/4	29	1	F	54	2 1/2	1/8	2	53 1/2	2 1/2	1/8	2	114	34
Texan A-38-¾	3	1/8	1	1 1/4	....	....	....	....	....	....	....	....	17 1/2	2 1/4	1/8	4	17 1/2	1 1/2	1/8	4	100	36
Tiffin GW-1½—1920–21	3	1/8	1 1/4	1 1/4	V	....	....	....	....	....	....	....	46	2	1/4	1	46	2	1/4	1	114	35
Tiffin MW-2½—1920–21	3	1/8	1 1/4	1 1/4	V	....	....	....	....	....	....	....	52	2 1/4	1/4	1	52	2 1/4	1/4	1	138 1/2	32 3/4
Tiffin PW-3½—1920–21	3	1/8	1 1/4	1 1/4	V	....	....	....	....	....	....	....	58	2 1/2	1/4	1	58	2 1/2	1/4	1	151	35 1/2
Tiffin TW-5—1920–21	3	1/4	1 1/2	1 1/2	V	....	....	....	....	....	....	....	68	3	1/4	1	68	3	1/4	1	156	38 1/2
Tiffin UW-6—1920–21	3	1/4	1 1/2	1 1/2	V	....	....	....	....	....	....	....	68	3	1/4	1	68	3	1/4	1	156	38 1/2
Titan 3½—1919	4	1/4	1 1/2	1 3/4	....	....	....	....	....	....	....	....	60	2 1/4	1/8	2	14	4 1/2	1/8	2	144	34
Titan 5-6—1918–20	4	1/4	1 1/2	1 3/4	....	....	....	....	....	....	....	....	90	2 1/4	1/8	2	14	4 1/2	1/8	2	144	34
Titan 2½—1920	4	1/4	1 1/4	1 1/4	....	....	....	....	....	....	....	....	54	2 1/4	1/8	2	26	4	1/8	1	144	32

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Tower J-1½—1920	3	1/16	1¼	1¼	....	....	....	....	....	....	....	....	11¾	3¼	¼	4	11¾	3¼	¼	4	135¼	32½
Tower H-2½—1919–20	3	1/16	1¼	1¼	....	....	....	....	....	....	....	....	13 1/16	3½	¼	4	13 1/16	3½	¼	4	138¾	32½
Tower G-3½—1919–20	3	1/16	1½	1½	....	....	....	....	....	....	....	....	15⅝	3¾	¼	4	15⅝	3¾	¼	4	152 11/16	37
Traffic C-4000—1919–20	3	1/16	1	1/16	H	10½	2	10½	2	41¼	1¼	F	43½	2½	1/16	2	38	1¾	1/16	2	120¾	42
Transport 20-1	3	1/16	1	....	V	12	2	12	2	36½	1	F	48⅞	2	1/16	2	45⅞	1½	1/16	2	101	34
Transport 30-1½	3	1/16	1	....	V	10¾	2	13	2	40⅜	1¼	F	48⅞	2½	1/16	2	45⅞	1½	1/16	2	117	34
Transport 50-2½	3	¼	1¼	....	V	9¼	2	10	1¼	32¾	2	F	50⅜	3	1/16	2	48½	2½	1/16	2	123	34
Transport 70-3½	4	¼	1¼	....	V	12	2	16	1¼	35⅞	2	F	11½	4	1/16	2	58	2½	1/16	2	150	36½
Traylor B-1¼	....	....	1¼	1½	....	....	....	....	....	33	1	F	50	2	⅛	2	50	2	⅛	2	117	34
Traylor C-2	....	....	1¼	1½	....	....	....	....	....	33	1	F	50	2	⅛	2	50	2	⅛	2	120	34
Traylor D-3	....	....	1¼	1½	....	....	....	....	....	33	1	F	56½	2¼	⅛	2	56½	2¼	⅛	2	142	34
Triangle AA-¾—1920	3	1/16	1	1	H	17	3	17	3	34	1	F	22	2½	1/16	1	41	2	1/16	2	94	35
Triangle A-1½—1918-20	3	¼	1	1	V	14	1¼	14½	1¼	43	1½	F	7	4	1/16	2	49	2	1/16	2	126	34
Triangle B-2½—1919-20	3	¼	1¼	1¼	V	18	1½	18	1½	40	1½	F	7	4	1/16	2	52	3	1/16	2	132	34
Triangle C-2--1920	3	¼	1	1	V	14	1¼	14½	1¼	43	1½	F	7	4	1/16	2	52	3	1/16	2	129	34
Triumph H-1½	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F	42	2½	1/16	2	38	1¾	1/16	2	120	34½
Triumph HB-2	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F	46	2½	1/16	2	32	2½	1/16	2	120	34½
Triumph HC-1½	4	¼	....	....	V	9	1¾	17	1¼	32½	2	F	46	2½	1/16	2	32	2½	1/16	2	120	34½
Twin City 2	3	¼	1¼	2	V	11	2	13	1¼	36¾	2	F	50	3	1/16	1	48	2½	1/16	2	132	33
Twin City 3½	4	¼	1¼	2	V	8	1⅝	14	1⅜	36½	2	F	15	3¾	¼	2	15	3¾	¼	2	156	36
Ultimate A-2—1920	4	¼	1 1/16	1⅝	....	11	2	8	1¼	34	2	F	45	2	¼	2	45	2	¼	2	126	32¾
Ultimate AJ2—1920	4	¼	1 1/16	1⅝	....	11	2	8	1¼	34	2	F	45	2	¼	2	45	2	¼	2	126	32¾
Ultimate B-3—1920	4	¼	1 1/16	1⅝	....	11	2	8	1¼	34	2	F	51	2¼	¼	2	51	2¼	¼	2	144	32¾
Ultimate BL3—1920	4	¼	1 1/16	1⅝	....	11	2	8	1¼	34	2	F	51	2¼	¼	2	51	2¼	¼	2	192	32¾
Union F-2½	3	¼	1¼	1¾	....	20	1¾	19½	...	37¾	2	F	55	3	1/16	1	50	2	1/16	1	133½	32
Union H-4	3	¼	1¼	1	....	20	1½	19½	....	37¾	2	F	56¾	3½	1/16	1	32	4½	1/16	1	157½	34
United 1½	....	....	1	1 1/16	....	15	2½	16	1½	37½	2	F	48	2	1/16	1	48	1½	1/16	1	120	33
United-2½	....	....	1¼	1 1/16	....	7	2½	12	1½	37½	2	F	49	3	1/16	1	49	2½	1/16	1	Opt	33
United 3½	....	....	1¼	1 1/16	....	7	2½	7	1½	37½	2	F	62	3	1/16	1	58	2½	1/16	1	Opt	34
United 5	....	....	1½	1 1/16	....	14½	2½	12	1½	37½	2	F	88½	2¼	1/16	1	88½	2¼	1/16	1	Opt	38
U.S.N.-1½	3	1/16	1	1/8	H	11½	2	9	1¼	37	1¼	F	50	2½	1/16	2	46½	1½	1/16	2	120	34
U.S.R.-2½-3	3	1/16	1¼	⅛	V	10	1¼	9	1¼	35	1¼	F	46	2¼	¼	2	46	2¼	¼	2	144	34
U.S.S.-3½-4	3	¼	1¼	¼	V	9	1½	8	1½	37	1¼	F	50	2½	¼	2	50	2½	¼	2	156	36
U.S.T.-5-6	3	¼	1½	¼	V	15	2	13	1½	38¾	2	F	62	3	¼	4	33	4	¼	1	168	36
Velie 46-1½—1921	3	1/16	1	1/16	V	9½	2¼	12¼	1½	40	¾	V	54 1/16	2½	1/16	2	52 1/16	2¼	1/16	2	120	31
Vim 29-½	3	1/16	7/16	....	....	....	....	....	....	30	1	F	14½	1½	1/16	4	14½	1½	1/16	4	64	30
Vim 30-½	3	1/16	⅞	....	....	....	....	....	....	30	1	F	14½	1½	1/16	4	14½	1½	1/16	4	83½	30
Vim 31-1	4	1/16	1	....	....	....	....	....	....	40	1	F	19	2	1/16	4	19	2	1/16	4	92	32
Vim 22-2	4	1/16	1	....	....	....	....	....	....	40	1	F	44½	2	¼	2	44½	2	¼	2	121¼	34
Vim 23-3	5	1/16	1¼	....	....	....	....	....	....	40	1	F	51½	2¼	¼	2	51½	2¼	¼	2	159½	34
Walker M½	....	....	....	....	....	....	....	....	....	....	....	....	43	2¼	1/16	2	14	1¾	1/16	4	87	32
Walker K1	....	....	....	....	....	....	....	....	....	....	....	....	45½	2½	1/16	2	16	2	1/16	4	96	32
Walker L2	....	....	....	....	....	....	....	....	....	....	....	....	53¼	2½	1/16	2	19	2	1/16	4	120	32
Walker P3½	....	....	....	....	....	....	....	....	....	....	....	....	53¼	3	1/16	2	19 1/16	2½	1/16	4	140	32
Walker N5	....	....	....	....	....	....	....	....	....	....	....	....	53¼	3	1/16	2	19 1/16	2½	1/16	4	162	35
W.J.-B2½	4	¼	1¼	1¼	....	....	....	....	....	....	....	....	13	3½	¼	4	13	3½	¼	4	136½	32 1/16
Walter S-5	3	¼	½	2	V	10	1½	18	1½	39	1½	F	15	5	¼	4	57	2½	¼	2	150	36
Ward LaFrance 2B-2½—1920	3	¼	1¼	1½	V	7	1½	16	1½	41½	1½	F	13	3½	¼	4	13	3½	¼	4	124	33
Ward LaFrance 4A-3½—1920	3	¼	1¼	1¾	V	8½	1½	18	1½	41½	1½	F	15½	3¾	¼	4	15½	3¾	¼	4	170 1/16	37
Ward LaFrance 5A-5—1920	3	¼	1½	1¾	V	9¼	1½	18	1½	41½	1½	F	18	4	¼	4	18	4	¼	4	170 1/16	37
Ward WS2	....	....	....	....	....	....	....	....	....	....	....	....	14⅞	1½	1/16	8	14⅞	1½	1/16	8	66	33 1/16
Ward WA	....	....	....	....	....	....	....	....	....	....	....	....	18	2	1/16	8	18	2	1/16	8	95	33 1/16
Ward WB	....	....	....	....	....	....	....	....	....	....	....	....	19⅝	2	¼	8	19⅝	2	¼	8	120	33¾
Ward WD	....	....	....	....	....	....	....	....	....	....	....	....	49⅝	2¼	¼	4	49⅝	2¼	¼	4	144	33⅞
Ward WF	....	....	....	....	....	....	....	....	....	....	....	....	55 1/16	2½	¼	4	55 1/16	2½	¼	4	168	34⅜
Ward WH	....	....	....	....	....	....	....	....	....	....	....	....	68¾	3	¼	4	68¾	3	¼	4	192	37
Watson B¾	4	¼	1	1⅜	V	16½	1¼	3	1¼	40	1½	F	41	1¾	1/16	2	41	1¾	1/16	2	90⅛	30
Watson N-3½	3	1/16	1¼	1½	V	16½	1¼	3	1¼	36½	1¼	F	62	2½	¼	2	47	2½	¼	2	147	37
Watson U-5	3	1/16	1¼	1½	V	16½	1¼	3	1¼	38½	1¼	F	15½	3¾	¼	4	15½	3¾	¼	4	.....	36
Wells 2	3	1/16	....	¾	....	....	....	....	....	....	....	....	54	2½	⅜	2	51	2½	⅜	2	120¼	34
White 15-¾	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	76½	34
White..20-2	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	107½	34
White 40-3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	157	42
White 45-5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	157	42
White Hickory H-1½- 1919	3	1/16	1¼	1	....	11	2	8	1¼	41	⅝	V	13½	3½	¼	4	13½	3½	¼	4	116¼	32
White Hickory H-1½—1920	3	1/16	1¼	1	....	11	2	8	1¼	41	⅝	V	11¾	3¼	¼	4	11¾	3¼	¼	4	116¼	32
White Hickory E-1—1920	3	1/16	1¼	1	....	11	2	8	1¼	41	⅝	V	11	3	¼	4	11	3	¼	4	92¼	32½
White Hickory K-2½—1920	3	1/16	1½	1¼	....	9	1½	8	1¼	33¼	1¼	F	13½	3½	¼	4	13½	3½	¼	4	150	32
Wichita K-1—1915–20	3	1/16	1	1⅝	....	18½	1⅝	12	1⅝	52¾	1½	F	19½	2	1/16	4	19½	2	1/16	4	127½	30
Wichita L-1½—1916–20	3	1/16	1	1⅝	....	18½	1⅝	12	1⅝	52¾	1½	F	49	2	1/16	2	49	2	1/16	2	127½	30
Wichita M-2—1915–20	3	1/16	1	1⅝	....	18½	1⅝	12	1⅝	52¾	1½	F	49	2	1/16	2	49	2	1/16	2	126½	30
Wichita R-2½—1917–20	3	1/16	1	1⅝	....	18½	1⅝	12	1⅝	52¾	1½	F	54	2¼	1/16	2	54	2¼	1/16	2	126½	30
Wichita RX-2½—1919–20	4	1/16	1¼	1¼	....	5	1⅝	11	1⅝	40	1½	F	54	2¼	1/16	2	54	2¼	1/16	2	130	30
Wichita O-3½—1915–20	4	1/16	1¼	1¾	....	5	1⅝	11	1⅝	40	1½	F	56½	2½	¼	2	56½	2½	¼	2	152½	36
Wichita S-5—1919–20	4	1/16	1¼	1¾	....	5	1⅝	11	1⅝	40	1½	F	66	3	¼	2	66	3	¼	2	163½	36
Wilcox AA-1--1920	3	1/16	1	....	....	....	....	....	....	....	....	....	47 1/16	2½	1/16	2	33¼	2½	1/16	2	96	34
Wilcox B-1½—1920	3	1/16	1¼	....	....	....	....	....	....	....	....	....	47 1/16	2½	1/16	2	33¼	2½	1/16	2	132	33
Wilcox C-2½—1920	3	1/16	1¼	....	....	....	....	....	....	....	....	....	57½	2½	1/16	2	42½	2½	1/16	2	141	33
Wilcox E-3½—1920	3	1/16	1¼	....	....	....	....	....	....	....	....	....	57½	2½	¼	2	42½	2½	¼	2	156	33
Wilcox F-5—1920	3	1/16	1½	....	....	....	....	....	....	....	....	....	69⅝	3½	¼	2	52	3½	¼	2	148½	36
Wilson 1½-- 1919–20	4	1/16	....	1	....	....	....	....	....	....	....	....	39½	1¾	1/16	2	39½	1¾	1/16	4	120	33
Wilson 2½—1919–20	4	1/16	....	1¼	....	....	....	....	....	....	....	....	13¼	3½	1/16	4	13¼	3½	1/16	4	126	33
Wilson 3½—1919–20	4	1/16	....	1½	....	....	....	....	....	....	....	....	16	3¾	1/16	4	16	3¾	1/16	4	147	38
Wilson 5—1919–20	4	1/16	....	1½	....	....	....	....	....	....	....	....	18	4	1/16	4	18	4	1/16	4	147	38¼
Winther 751-1	3	1/16	1	....	....	15¾	2	17	2	36 1/16	1	F	42	2	1/16	2	24	2	1/16	1	102	30
Winther 39-1½	3	¼	1¼	....	....	10	1⅜	4 1/16	1½	33¼	1¼	F	50	2¼	¼	2	22½	2¼	¼	1	120	30
Winther 430-1½	3	¼	1¼	....	....	11¼	1½	11½	1¼	30⅝	1½	F	50	2¼	¼	2	22½	2¼	¼	1	120	30
Winther 49-2	3	¼	1¼	....	....	11½	1½	6½	1½	37½	1¼	F	52	3	¼	2	50	2¼	¼	2	144	33
Winther 450 2½	3	¼	1¼	....	....	11½	1½	6½	1½	37½	1¼	F	52	3	¼	2	22½	2¼	¼	2	120	30
Winther 70-3½	3	¼	1¼	....	....	17⅞	1¾	8	1½	....	....	....	62	3	¼	2	60	2½	¼	2	156	33
Winther 109-5	3	¼	1½	....	....	21½	1¾	8	1½	42¼	2	F	93	2¼	¼	2	93	2¼	¼	2	156	33
Winther 140-7	3	¼	1½	....	....	12	1¾	6	1¾	42¼	2	F	93	2¼	¼	2	93	2¼	¼	2	156	33
Witt Will N-1½—1919–20	3	1/16	1¼	1¼	V	8	1½	12	1¼	31	1¼	F	48	3¼	¼	4	48	3¼	¼	4	Opt	32
Witt Will P-2—1919–20	3	1/16	1¼	1¼	V	8	1½	12	1¼	31	1¼	F	52	3½	¼	4	52	3½	¼	4	Opt	32
Wolverine C-1½—1918-20	3	1/16	1	1	....	....	....	....	....	....	....	....	41½	2½	1/16	2	41½	1¾	1/16	2	120	34½
Wolverine D-2-1920	3	1/16	1	1	....	....	....	....	....	....	....	....	51	3	1/16	2	46	2	1/16	2	132	34½
Wolverine 3½-1921	3	¾	1¼	1¼	....	....	....	....	....	....	....	....	62	3	¼	2	60	2½	¼	2	186	.....
Yale A-1½ Speed Truck	....	....	1¼	1¼	....	....	....	....	....	....	....	....	41½	2	¼	1	41½	2	½	1	96	32

KEY OF ABBREVIATIONS

Note: Numerals on This Page Correspond With Numerals at Head of Specification Columns on Pages Following

In All Specifications { O—Own / Op or Opt—Optional

Engine:
Beav—Beaver
Cont—Continental
GBS—Golden, Belknap & Swartz
Gr-B—Gray-Beal
Her—Hercules
Hin—Hinkley
HSp—Herschell-Spillman
1 LeR—Le Roi
Lib—Liberty
LMF—Light Mfg. & Fdy.
Lyco—Lycoming
Rut—Rutenber
Ster—Sterling
TC—Twin City
Vict—Victory
Wau—Waukesha
Wei.—Weidely
Wis—Wisconsin

Valve Arrangement:
H—Overhead
2 L—ELL-Head
T—TEE-Head
S—Sleeve

How Cooled:
A—Air
3 C—Centrifugal
G—Gear Pump
T—Thermo-Syphon

Radiator (Make):
BW—B & W
Brm—Brenem
Bus—Bush
Can—Candler
Chic—Chicago
EM—English-Mersick
Eur—Eureka
Fed—Fedders
Flex—Flexo
GO—G. & O.
Har—Harrison
Hoo—Hooven
Idl—Ideal
4 Jam—Jamestown
Kue—Kuenz
Liv—Livingston
Lng—Long
McC—McCord
May—Mayo
Mod—Modine
Per—Perfex
R-T—Rome-Turney
Spar—Spartan
Spec—Special
Spli—Splitex
Stan—Standard

Radiator (Type):
C—Cellular
5 H—Honeycomb
PT—Plain Tube
FIN—Fin Tube
ZZT—Zig Zag Tube

Lubrication:
6 FS—Force and Splash
F—Force Feed
S—Splash

Carburetor:
B&B—Ball & Ball
Bent—Bennett
Cart—Carter
Eag—Eagle
Ens—Ensign
Flch—Fletcher
Holl—Holley
John—Johnson
King—Kingston
7 Mar—Marvel
Mas—Master
Mill—Miller
Rayf—Rayfield
Strm—Stromberg
Shk—Shakespeare
Sheb—Schebler
Stew—Stewart
Till—Tillotson
Zen—Zenith

Fuel Feed:
8 G—Gravity
P—Pressure
V—Vacuum

Governor:
Con—Continental
Del—Delaney
Dup—Duplex
Hin—Hinkley
9 Mer—Merrill
McC—McCanna
Mon—Monarch
Phar—Pharo
Pier—Pierce
Rug—Ruggles
Sim—Simplex
Wau—Waukesha

Clutch (Make):
B. B.—Borg & Beck
B-Li.—Brown-Lipe
10 Covt.—Covert
Det.—Detlaff
Full.—Fuller
D. G.—Detroit Gear & Mach.
Hart—Hartford
HS—Hele-Shaw
M-E—Merchant & Evans
Munc.—Muncie
M-P—Muncie Products
W-C—Warner Corporation
W-Gr—Warner Gear

Clutch (Type):
D—Disc
11 C—Cone
DP—Dry Plate
WP—Wet Plate
WD—Wet Disc
DD—Dry Disc
Fr—Friction

Ignition System:
Amr—American Swiss
AtK—Atwater-Kent
AuL—Auto-Lite
Bos—Bosch
Ber—Berling
Con—Connecticut
Del—Delco
Eis—Eisemann
Exi—Exide
Kin—Kingston
KW—K. W. Ignition Co.
Lor—Louraine
NE—North East
12 POL—Prest-O-Lite
Rm—Remy
Sim—Simms
Spl—Splitdorf
Wag—Wagner
Wes—Westinghouse

Engine Starter:
AC—Allis-Chalmers
AL—Auto-Lite
Bj—Bijur
DL—Delco
Dy—Dyneto
GD—Gray & Davis
LN—Leece-Neville
NE—North East
13 RE—Remy
Wg—Wagner
USL—U. S. L.
W—Westinghouse

Gearset:
B-Li—Brown-Lipe
Cott—Cotta
Covt—Covert
D-Sea—Driggs-Seabury
Det—Detroit
Dun—Dundore
Durst—Durston
Full—Fuller
G-Le—Grant Lees
MM—Mechanics Mach. Co
Munc—Muncie
14 M-P—Muncie Products
Rock—Rockford
W-C—Warner Corporation
W-Gr—Warner Gear

Location of Gearset:
A—Amidships
R—Rear
U—Unit with engine
15 J—Unit with jackshaft

Universal:
A-B—Easton Mch. Co.
Acm—Acme
Arv—Arvac
16 Bear—Bearings Co.
Bld—Blood Brothers
Dit—Ditwiler
Flex—Flexite
Hart—Hartford
KB—Kinsler-Bennett
Mech—Mechanics
M-E—Merchant & Evans
Nor—Norwalk
Pet—Peters
Sned—Snead
Spic—Spicer
Ster—Sterling
Ther—Thermoid
UM—Universal Machine
UP—Universal Products

Springs:
Bea—Beans
Cham—Champion
Coop—Cooper
Del—Delany
Det—Detroit
GC—Garden City
Har—Harvey
Hig—Higgins
IC—Iron City
Kal—Kalamazoo
Lah—Laher
Mar—Maremont
Math—Mather
Mer—Merrill
17 Nat—National
Pen—Penn
Per—Perfection
Row—Rowland
Shel—Sheldon
SP—Spring Perch
Stan—Stan-Par
Ster—Sterling
Tem—Temme
Tut—Tuthill
US—United States
Wis—Wisconsin

Final Drive:
B—Bevel Gear
C—Chain
I—Internal Gear
N—Concentric Spur
18 P—Spur
R—Double Reduction
S—Spiral Bevel
W—Worm

Rear Axle (Make):
Badg—Badger
Col—Columbia
Stan—Chicago
Cl—Clark
Dun—Dunkirk
Eat—Eaton, Stan-Par
19 Hind—Hindley
Ir.M—Iron Mt.
Keno—Kenosha
Ken—Kennedy
Rock—Rockford
Russ—Russel
Sals—Salisbury
Sav—Savage
Shel—Sheldon
Thom—Thomson
Tim—Timken
Torb—Torbensen
W-M—Weston-Mott
US—United States
Walk—Walker
Wis—Wsconsin

Rear Axle (Type):
Flot—Floating
½-Fl—Semi-Floating
20 ¾-Fl—¾-Floating
D—Dead

Steering Gear:
CAS—C. A. S. Products Co.
Dit—Ditwiler
Gem—Gemmer
Jac—Jacox
Lav—Lavine
21 M-P Muncie Products
Ros—Ross
W-C—Warner Corporation
Woh—Wohlrab

Wheels:
Arc—Archibald
AuW—Auto Wheel
Bim—Bimel
Cla—Clark
C&M—Crane & McMahon
Day—Dayton
Det—Detroit
E&O—Eberly & Oris
Hay—Haynes
Hoo—Hoopes Brothers
Jon—Jones
Kel—Kelsey
22 Mot—Motor Wheel
Mut—Mutual
Nor—Northern
Pru—Prudden
Roy—Royer
Rus—Russell
Sal—Salisbury
Sch—Schwartz
Smi—Smith
Sta—Stanwell
StM—St. Mary
Stn—Standard
Wal—Walker
Wan—Wayne
W-L—Waterhouse & Lester
Wes—Western Wheel Co

Rim Equipment:
Bak—Baker
Det—Detroit
23 Fir—Firestone
Gdy—Goodyear
Jax—Jaxon
Kel—Kelsey
Stn—Stanweld

Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. GasolineTractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Also Replacement Table in "Service and Repair Departments." Truck Frame Dimensions Are Included in Replacement Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

* An asterisk in front of the model name indicates that corrections have been made somewhere in the specifications since the previous month

Trade Name and Model	Chassis Price	Engine Details: Make and Model Number 4 Cylinder unless otherwise noted (1)	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't (2)	How Cooled (3)	Radiator (Make) (4)	Radiator (Type) (5)	Lubrication (6)	Carburetor (7)	Fuel Feed (8)	Governor (Make) (9)	Clutch (Make) (10)	Clutch (Type) (11)	Ignition System (12)	Engine Starter (13)	Gearset: Make (14)	Location (15)	Speeds	Universal (Make) (16)	Springs (Make) (17)	Final Drive (18)	Rear Axle: Make (19)	Type (20)	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make) (21)	Tires *Pneumatic †Dual: Front	Rear	Wheels (Make) (22)	Rim Equipment (23)	Chassis Weight	Wheelbase	Pr. Cent of Weight on Rear Wheels
1000 Pounds																																		
Dodge Brothers	1085	Own	3⅞x4½	24	L	C	McC	PT	FS	Stew	V	....	Own	DD	Own	NE	Own	U	3	Own	....	S	Own	Flot	4.1	19.4	Own	33x4	33x4	Kel	Kel	1990	114	66.5
Seneca	....	LeR	3⅛x4½	15.6	L	T	Kue	C	S	Sheb	V	....	B.B.	D	Con	AC	W-Gr	U	3	UM	Math	S	Peru	Flot	4.75	14.45	Dit	30x3½*	30x3½*	Day	Jax	1700	108	80
Vim 29	1355	Own	3⅛x4½	15.6	L	T	McC	PT	FS	Zen	G	....	B.B.	DD	Wes	W	....	U	3	Spic	Shel	W	Shel	....	5.5	....	CAS	31x4*	31x4*	Hoo	Fir	2175	108	....
Vim 30	1550	Own	3⅛x4½	15.6	L	T	McC	PT	FS	Zen	G	....	B.B.	DD	Wes	W	....	U	3	Spic	Shel	W	Shel	....	5.5	....	CAS	32x4½*	32x4½*	Hoo	Fir	2290	127	....
1500 Pounds																																		
*Acme G	1790	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	....	B.B.	DP	Eis	GD	Cott	U	3	Bld	Det	W	Timk	½Fl	6.2	24.8	Ros	35x5*	35x5*	....	....	3050	130	50
Brockway E	....	....	3¾x5⅛	22.5	....	....	....	Fin	....	....	V	....	....	DD	....	....	....	U	3	....	....	S	....	¾Fl	....	....	....	35x5*	35x5*	....	....	....	135	....
Chevrolet G	920	Own	3 11/16x4	21.7	H	C	Har	....	FS	Zen	....	....	....	C	Rm	AL	M-P	...	3	Arv	....	S	....	½Fl	....	....	M-P	31x4	34x4½	....	Jax	2167	120	....
G. M. C. K-15	....	Own	3½x5½	19.6	L	T	Own	Fin	F	Mar	G	....	Own	DD	Eis	....	Own	U	3	UM	Det	B	Own	¾Fl	6	....	Own	33x4½	33x4½	Kel	....	2850	132	64
H. R. L.-L.	2400	H-Sp 7000	3½x5	19.6	L	T	Fed	Fin	F	Zen	V	....	Own	DP	Bos	GD	Covt	U	3	Spic	Shel	W	Wis	½Fl	6.2	22.	Ross	34x4½*	35x5*	Sch	....	3300	134	....
International H	1850	Own-H	3½x5¼	19.6	L	C	Own	Fin	FS	Ens	G	Own	Own	DP	Bos	Own	Own	A	3	Own	....	I	Own	D	7	25.	Own	36x3½	36x3½	Own	....	2800	115	50
Internat'l Speed Truck S	1500	Lyco-Int'l	3½x5	19.6	L	T	Lng	Fin	FS	Ens	G	....	Mun	DP	Con	AL	Mun	U	3	Sned	Stan	I	Torb	D	6.3	....	CAS	34x5*	34x5*	Opt	....	2600	124	50
Kearns ¾	1600	L. M. F.-H	3¼x4½	16.9	L	T	Own	H	FS	Zen	G	Pier	B.B.	DD	Ber	Dy	G-Le	U	3	M-E	Math	I	Torb	D	6.5	19.	Lav	32x4½*	32x4½*	....	Fir	2000	118	65
Marshall	....	Lyco	3¼x5	16.9	...	T	....	C	...	....	...	....	Hart	....	....	....	....	U	3	....	....	....	....	Flot	....	....	....	30x3½	30x3½	....	Fir	....	112	....
Napoleon 7	1350	H-Sp	3½x5	19.6	H	T	Own	H	F	Sheb	G	....	B.B.	D	....	GD	MM	U	3	UP	Math	...	Torb	D	5.1	....	Lav	33x4	....	....	Fir	2800	121	....
Rainier R11	2150	Cont-N	3½x5	19.6	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	....	B-Li	U	3	Hart	Per	W	Tim	....	7.2	23.9	Lav	35x5*	35x5*	....	Fir	2350	125	80
Shaw M-2	2050	Cont N-¾	3¾x5	22.5	L	T	Lng	Fin	FS	Zen	G	....	B-Li	DD	Bos	....	B-Li	U	3	Spic	Math	B	Tim	....	4.9	16.31	Gem	33x4½	33x4½	Stn	Fir	2400	116	65
Stewart 11	1350	LeR-2C	3⅛x4½	15.6	...	T	Bus	PT	FS	Zen	G	....	B.B.	DP	Eis	Dy	Durs	U	3	Hart	Det	I	Cl	D	6.6	19.8	CAS	32x4	32x4	Way	Fir	2190	110	66.7
Texan	1495	Lyco-K	3½x5	19.6	L	T	Har	C	FS	Cart	V	....	B.B.	DD	Con	Bj	G-Le	U	3	UP	Mar	B	Peru	Flot	4.2	12.6	CAS	33x4	33x4	Stn	Fir	2500	112	60
Triangle AA	1600	H-Sp	3¼x5	16.9	L	T	Per	ZZT	FS	Strm	G	....	Full	DD	NE	NE	Full	U	3	UP	Det	I	Cl	....	6.75	20.	Gem	35x5*	35x5*	Hay	Fir	2600	115	60
*Watson B	1750	Wau BUX	3¾x5¼	22.5	L	P	GO	C	S	John	G	Wau	B-Li	D	Con	D	B-Li	U	3	M-E	Shel	W	Emp	¾Fl	6.2	20.7	Lav	34x4½*	34x4½	Hoo	Fir	2900	128	60
White 15	2600	Own	3¾x5⅛	22.5	L	C	....	C	FS	Own	G	....	Own	D	....	....	....	A	4	Own	....	B	Own	½Fl	....	....	Own	34x5*	34x5*	....	Fir	2960	133	....
1 Ton																																		
Acason R	....	Wau B.U.X.	3¾x5¼	22.5	L	P	Can	C	S	Sheb	V	Wau	Full	....	Eis	....	Full	U	4	Bld	Det	W	Tim	....	8.25	40.1	Ros	36x3½†	36x5	Bim	Opt	3650	142	....
*Acme B	2175	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	Dup	B.B.	DP	Eis	GD	Cott	U	3	Bld	Det	W	Tim	½Fl	7.2	28.8	Ros	34x3½	34x5	Bim	....	3350	130	50
Akron Multi-Truck	2685	Hin	4 x5¼	25.6	L	C	Fed	H	F	Strm	G	....	War	DP	Wes	W	W-Gr	U	3	....	Stan	S	S-Par	½Fl	5.125	....	Jac	34x5*	34x5*	Bim	Fir	3600	133	....
All American B-1	1795	H-Sp 7000	3½x5	19.6	L	T	Stan	T	FS	Strm	G	....	Det	DP	Bos	Dy	Cott	U	3	Hart	Det	I	Torb	D	8.1	18.1	Lav	33x4*	32x4	Stn	Gdy	2600	130	75
*Apex G	1695	Lyc KB	3¾x5⅛	22.5	L	T	GO	C	S	Strm	V	....	B.B.	DP	AuL	AL	Mun	U	3	Bld	Det	I	Torb	....	6.5	....	Lav	33x4*	32x5	Roy	Fir	2150	130	70
Armleder 20	....	Buda CTU	3¾x5¼	22.5	L	P	Own	Fin	F	Zen	V	....	Full	DD	Bos	W	Full	U	3	Spic	Math	W	Timk	Flot	7.25	29	Ros	34x3½	34x5	StM	....	3950	148	80
Atlas 21	....	Lyco	3½x5	19.6	L	T	Own	H	S	Strm	...	....	B.B.	DD	AtK	Bj	Own	...	3	Ster	IC	W	Own	½Fl	6	16.8	CAS	32x4½*	32x4½*	....	....	2650	130	70
Avery	....	Own 6	3 x4	21.6	L	T	Own	C	S	Strm	V	Own	Own	DP	KW	W	Own	U	3	Pet	Math	I	Torb	....	....	....	Ros	34x5	34x5	StM	Gdy	2000	129	....
Beck Hawkeye A	1950	H-Sp N-¾	3¾x5	22.5	L	T	Har	C	S	Strm	G	Pier	Full	DD	Bos	....	Full	...	3	Bld	Hig	W	Cl	D	6.1	20.51	Lav	35x5*	35x5*	Hay	Fir	2800	124	75
Bell M	1550	LeR	3⅛x4½	15.6	L	C	Chic	PT	F	Zen	V	....	B.B.	DP	Spl	....	Mun	U	3	Ther	Det	W	Ir-M	....	7.75	....	Dit	34x4½†	34x4½*	Bim	Fir	2500	120	65
Belmont	....	GBS-SMG	3¾x4¼	22.5	L	T	GO	....	S	Zen	G	....	B.B.	....	Con	Dy	....	U	3	Ster	....	B	....	¾Fl	5.2	15.75	Lav	31x4*	31x4*	E-O	Stn	2000	113	60
Bessemer	....	Cont N	3½x5	19.6	L	T	....	C	FS	Strm	G	....	Full	DD	Bos	....	Full	U	3	Arv	Per	I	Torb	D	7.1	20.25	Ros	34x3½	34x4	Sch	Fir	2910	124	57
Bethehem K	1695	Own K	3½x5	19.6	L	T	Liv	C	F	Zen	G	....	B.B.	DP	Bos	GD	Det	U	3	Spic	Math	I	Col	¾Fl	6.8	18.75	Ros	34x4½*	35x5*	Way	....	2715	125	....
Birch 1	1595	Vict	3½x5	19.6	I	T	Chic	PT	FS	Strm	G	....	Full	DD	Con	....	Full	U	3	UM	....	I	Cl	D	....	....	Lav	32x3½	32x4	....	....	3200	132	....
Chevrolet T	1325	Own	3 11/16x5¼	21.7	H	C	Har	....	FS	Zen	...	Mon	....	C	Rm	AL	M-P	...	3	Arv	....	W	....	½Fl	....	....	M-P	33x4*	35x5*	....	Jax	2840	125	....
Clydesdale 32 C	2375	Own CU2	3¾x5⅛	22.5	L	G	Own	PT	F	Zen	V	Own	B-Li	DD	Bos	....	B-Li	U	3	Spic	Per	W	Timk	½Fl	7.25	24.1	Ros	34x3½	34x5	....	....	3240	149	72
Collier 18	....	Cont N	3½x5	19.6	T	P	Lng	PT	S	Zen	V	Mon	Full	DP	Eis	....	Full	U	3	UP	Math	W	Timk	....	7.75	31	Ros	34x4	34x5	Bim	Fir	3210	140	70
Corbitt E	2400	Cont N-¾	3¾x5	22.5	L	T	McC	Fin	FS	Strm	V	Sim	Full	DD	Eis	....	Full	U	3	Hart	Shel	W	Shel	½Fl	6.5	19.5	Ros	34x3½	34x4	Bim	Fir	3890	130	75
Day Elder A	2100	Cont N	3¾x5	22.5	L	T	Bus	Fin	FS	Zen	G	....	Covt	DD	Eis	....	Covt	U	3	Hart	IC	W	Shel	½Fl	7.8	28.55	Gem	34x3½	34x4	Jon	Fir	3250	128	70
Denby 12	2400	Cont N-¾	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	Mon	Full	DD	Eis	....	Full	U	3	UP	Det	I	Russ	D	8.2	26.4	Ros	35x5*	36x6*	Hay	Fir	3220	124	73
Dependable Dispatch A	1650	H-Sp-4	3½x5	19.6	L	T	Lng	H	FS	Zen	V	Mon	B.B.	DD	Spl	AL	Det	U	3	Acm	Per	W	Emp	½Fl	6.2	20.5	Woh	34x3½	34x5	Bim	Fir	4000	134	75
*Diehl A	....	Cont N	3½x5	19.6	...	T	....	H	FS	Zen	G	....	B.B.	....	Sim	....	Durs	...	3	KB	Mar	I	Torb	D	5.3	....	Ros	34x4½*	35x5*	Sch	Fir	2400	115	90
Diehl B	....	H-Sp	3½x5	19.6	...	T	....	H	FS	Zen	G	....	NE	....	....	....	Durs	...	3	M-E	Row	I	Torb	D	5.3	....	Ros	....	....	Wan	....	....	....	....
Federal SD	2500	Cont J-4	3¾x5	22.5	L	C	Own	Fin	F	Zen	V	Phar	B.B.	DP	Eis	....	Own	A	3	Pet	Math	W	Timk	½Fl	6.2	20.65	Gem	35x5*	36x6*	Det	Det	3600	132	65
Ford T	545	Own	3¾x4	22.5	L	T	Own	Fin	S	Holl	G	....	Own	WP	Own	....	Own	U	2	Own	Own	W	Own	½Fl	7.25	19.9	Own	30x3½*	32x4½	....	....	1500	124	50
Forschler A	....	Cont N	3½x5	19.6	L	C	EM	....	FS	Zen	...	Dup	Full	....	Bos	Op	Full	...	3	Hart	Own	W	Shel	....	....	....	Ros	34x3	34x4	....	....	3450	120	....
Fulton A	1775	H-Sp-7000	3½x5	19.6	...	...	Liv	H	FS	Cart	G	....	B.B.	DP	Ber	W	Durs	U	3	Spic	Row	B	Col	¾Fl	6.8	....	Lav	35x5	35x5	Hoo	Fir	2800	130	65
																																3300	132	66

Fulton A	1775	H-Sp-7000	3½x5	19.6	...	..	Liv	H	FS	Cart	G	.....	B.B.	DP	Ber	W	Durs	U	3	Spic	Row	B	Col	.....	6.8	.....	Lav	35x5	35x5	Hoo	Fir	2800	130	65
G. M. C. K-16		Own	3½x5½	19.6	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	.....	Own	U	3	UM	Det	B	Own	¾ Fl	6	.....	Own	34x5	34x5	Kel	.....	3300	132	66
Gramm Bernstein 10	1495	.....	3½x5	19.6	L	T	Own	Fin	S	Strm	G	.....	B.B.	DP	Con	RE	.....	U	3	Own	Per	B	Sals	¾ Fl	5.75	21	.....	33x5*	33x5*	.....	Fir	2875	129	90
Hahn J-4	.....	Cont J-4	3¾x5	22.5	L	C	Own	PT	F	Strm	G	.....	.....	DD	Eis	.....	B-Li	...	3	Spic	.....	W	Shel	.....	6 1	.....	.....	36x3½	36x5	.....	Bak	3200	...	....
Higrade A18	2100	Cont N	3½x5	19.6	L	T	Per	PT	FS	Zen	V	Dup	Full	DD	Sim	AL	Full	U	3	Bld	Per	W	Shel	.....	7 7	22.75	Lav	35x5	35x5	Det	Fir	2700	115	66
Hoover 15B		Cont N	3½x5	19.6	L	G	Can	.....	F	Sheb	V	.....	Full	.....	Spl	.....	Full	U	3	Acm	Shel	W	Shel	.....	6.2	18.6	Lav	32x4	33x4½	E-O	Fir	2425	120	....
International F	2050	Own F	3½x5¼	19.6	L	C	Own	Fin	FS	Ens	G	Own	Own	DP	Bos	Own	Own	A	3	Own	.....	I	Own	D	8	26.5	Own	36x3½	36x4	Own	.....	3000	128	50
Kleiber AA	2600	Cont C-4	4⅛x5¼	27.2	L	C	Per	C	...	Strm	G	Pier	.....	DD	Bos	.....	B-Li	U	3	Spic	.....	W	Timk	¾ Fl	7.1	31.	Ros	34x3½	34x5	W-L	.....	4200	130	75
Lone Star 9	..	Vict	3½x5	19.6	I	T	Chic	PT	S	Strm	V	.....	Full	.....	Con	.....	Full	A	3	Ther	.....	I	Keno	D	...	.....	Lav	34x4½*	34x4	.....	.....	3200	134	....
*Luedinghaus C	2100	H-Sp	3½x5	19.6	L	T	Own	PT	FS	Sheb	G	.....	B.B.	D	Wei	W	G-Le	U	3	Spic	Tut	W	Wis	½ Fl	6.2	18.6	Lav	35x5*	35x5*	StM	.....	2850	130	75
Menominee HT	2080	Wis CAU	3¾x5	22.5	L	C	.....	Fin	FS	Strm	G	Mon	Det	DP	Eis	.....	Cott	U	3	Spic	Tut	W	Wis	.....	7.75	28.52	Ros	34x3½	36x5	Stn	Fir	....	130	80
Moreland 20-N	2850	Cont J4	3¾x5	22.5	L	C	Own	C	FS	Mas	G	.....	Own	DD	Spl	.....	Own	A	4	Ther	US	W	Timk	.....	5.16	.....	Ros	35x5	36x6	.....	.....	3700	132	....
Napoleon 9	1535	Vict	3½x5	19.6	H	T	Own	PT	F	Sheb	G	.....	Full	DD	Con	AL	Full	U	3	Bld	Math	I	Torb	D	6.1	18.1	Lav	35x5*	35x5*	.....	Fir	3200	133	65
Nash 2018	1895	Own-4	3¾x5¼	22.5	L	C	.....	PT	F	Strm	G	Sim	B.B.	DP	Eis	.....	.....	U	3	Own	Har	I	CL.	D	6.8	21.85	Lav	34x3	34x4	AuW	.....	3400	130	67.5
Nelson & LeMoon F1	.....	Cont C-4	4⅛x5¼	27.2	L	C	Chic	Fin	S	Strm	G	Pier	B-Li	DD	Bos	W	B-Li	U	3	Own	Tut	W	Timk	.....	7.1	.....	Lav	36x3½	36x5	Pru	Gdy	2900	Op	80
Norwalk	1695	Lyco K	3½x5	19.6	L	T	Stan	C	FS	Zen	V	.....	B.B.	.....	Del	Dy	G-Le	...	3	UM	Stan	W	Stan	½ Fl	7.75	.....	CAS	34x3½	34x4	.....	.....	2940	130	90
*Old Hickory	2175	Cont N	3¾x5	22.5	L	T	Lng	Fin	F	Strm	V	Pier	B.B.	DD	Eis	.....	G-Le	U	3	Bld	Stan	W	Timk	½ Fl	7.7	23.1	Lav	36x6*	36x6*	Own	Fir	3470	135	75
Oldsmobile	1500	Own	3 11/16x5¼	21.7	H	G	Own	C	FS	Zen	V	.....	Own	C	Rm	AL	.....	U	3	Spic	.....	I	Torb	D	6.5	22.8	Jac	35x5	35x5	AuW	Jax	2580	128	73
*Patriot Revere 1	1785	Cont N	3¾x5	22.5	L	T	BW	C	FS	Strm	V		B.B.	DD	AtK	Bj	Covt	A	3	Ther	Hop	W	Dun	½ Fl	6.1	21.72	CAS	35x5	35x5*	Bim	Gdy	2800	128	60
Pioneer AA, (Chicago)	1550	GBS	3¾x4¼	22.5	L	T	Chic	H	F	Zen	V	.....	DG	D	Bos	AL	G-Le	U	3	Ther	GC	W	IrM	¾ Fl	6.1	25.1	Wol	32x4½*	32x4½*	Bim	Fir	2300	130	80
Rainier R-19	2350	Cont N	3½x5	19.6	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	.....	B-Li	U	3	Hart	Per	W	Shel	.....	7.8	.....	Lav	34x3	34x4	.....	Fir	2950	133	80
*Republic 10-E	1945	Cont N-3¾	3¾x5	22.5	L	T	Own	C	FS	Strm	G	.....	Full	DD	Bos	.....	Full	U	3	Hart	Math	I	Torb	D	6.28	25.12	Jac	35x5*	35x5*	Nor	Fir	2900	124	....
Royal 1	.....	Wis CAU	3¼x5	16.9	...	C	.....	Fin	...	Strm	...	Mon	B.B.	DD	Bos	Op	Own	...	3	Own	Mer	W	Timk	.....	.....	.....	Ros	34x4	34x5	.....	.....	.....	128	....
Sandow G	2295	Cont N	3½x5	19.6	L	T	.....	Fin	FS	Strm	G	.....	.....	DD	Eis	.....	Full	U	3	Spic	GC	W	Shel	.....	7.8	23.1	Ros	34x3½	34x5	Stn	.....	3000	120	70
Service 220	2415	Buda R U	3½x5⅛	19.6	L	T	.....	Fin	FS	Strm	V	.....	Full	DD	Eis	.....	Full	U	3	Arv	.....	W	Timk	.....	7.75	23.25	Ros	34x3½	34x5	Bim	.....	3475	137	65
Shaw M4	2450	Cont N-¾	3¾x5	22.5	L	T	Lng	Fin	FS	Zen	G	.....	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Math	W	Timk	½ Fl	7.2	24	Gem	35x5*	35x5*	Stn	Fir	2575	130	....
*Signal NF	2475	Cont J4	3¾x5	22.5	...	C	McC	Fin	FS	Strm	G	Pier	B-Li	DP	Eis	.....	B-Li	A	3	.....	.....	W	Timk	½ Fl	7.2	.....	Ros	34x5*	36x6*	.....	.....	3550	132	....
Southern 10	20.0	Buda WU	3¾x5⅛	22.5	L	T	R-T	PT	S	Zen	...	Pier	Full	DD	Bos	.....	Full	U	3	.....	Shel	W	Shel	.....	.....	.....	Ros	34x3½*	34x4	.....	.....	.....	130	60
Standard I-K	.....	Cont N	3¾x5	22.5	L	C	Lng	Fin	S	Strm	G	Mon	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Per	W	Timk	½ Fl	7.2	23.97	Ros	36x6	36x6*	.....	Opt	3466	134	71.5
Stewart 12	1750	H Sp 7000	3½x5	19.6		T	Bus	PT	FS	Zen	G	.....	B.B.	DP	Eis	Dy	Durs	U	3	Hart	Det	I	Cl	D	6.7	20.8	Ros	35x5	35x5	Way	Fir	2780	130	70
Stoughton A	1995	Wau Bux	3¾x5¼	22.5	L	C	Own	Fin	FS	Strm	G	Wau	B-Li	DD	Eis	.....	B-Li	U	3	Ther	Shel	W	Shel	½ Fl	6	24	Lav	34x4½*	35x5*	Bim	Gdy	3300	130	....
Superior D	1800	Cont N-¾	3¾x5	22.5	L	T	Idl	C	FS	Strm	V	Pier	Full	DD	Eis	.....	Full	U	3	Arv	Tut	I	Torb	A	7.1	20.7	CAS	34x4½*	34x4	Sch	Fir	2950	124	75
Transport 20	1850	Buda	3¾x5⅛	22.5	L	T	Mod	C	FS	Strm	G	Sim	Full	DD	Eis	.....	Full	U	3	Ther	Det	I	Cl	D	7.2	21.8	Jac	34x3½	34x4	.....	Fir	3070	130	70
Vim 31	2475	Her-CU-2	3¾x5⅛	22.5	L	G	McC	PT	F	Zen	G	.....	B-Li	DD	Spl	W	B-Li	U	3	Spic	Shel	W	Shel	.....	6.5	.....	Gem	35x5*	35x5*	Hoo	Fir	3790	125	....
*White Hickory E	.....	Cont N-¾	3¾x5	22.5	L	C	Chic	Fin	FS	Strm	V	Sim	Full	DD	Eis	.....	Full	U	3	M-E	Shel	W	Timk	.....	6.2	18.6	Lav	34x5*	34x5*	Bim	Fir	3165	124	68
Wichita K	2300	Own-B	3½x5	19.6	L	T	Per	C	S	Strm	G	.....	Own	C	.....	.....	.....	A	4	Own	Det	W	Shel	½ Fl	7.8	40.56	Ros	36x3	36x4	Bim	.....	3650	144	80
Wilcox A	.....	Buda	3¾x5½	22.5	L	D	.....	PT	S	Strm	...	Dup	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Shel	W	Wis	½ Fl	7.7	25.8	Gem	35x5*	35x5	.....	.....	3600	130	75
Winther Delivery Special	1795	H-Sp 7000	3½x5	19.6	L	T	Brm	PT	F	Strm	V	.....	W-Gr	DD	Wes	W	W-Gr	U	3	Pet	Det	I	Torb	D	6.6	21.4	Lav	34x4½*	35x5*	Mut	Fir	2700	135	66
1¼ Ton																																		
Commerce T	1350	Cont N	3¾x5	22.5	L	T	Lng	Fin	S	Zen	V	.....	DG	C	Eis	.....	Det	U	3	Spic	Det	B	Sals	½ Fl	5.12	16.4	Jac	34x4½	34x4½	Bim	Fir	2800	127	80
Diamond O	2500	Hin	3¾x5¼	22.5	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Timk	½ Fl	7.2	26.06	Gem	34x5*	36x6*	.....	.....	3800	132	....
Garford 25	.....	Buda WU	3¾x5⅛	22.5	L	C	Own	Fin	S	Strm	V	.....	B-Li	DD	Spl	.....	Own	A	3	Spic	Per	W	Timk	½ Fl	7.75	.....	Ros	36x3½	36x4	.....	.....	3900	135	....
Indiana 12	2290	Wau BUX	3¾x5¼	22.5	L	C	McC	Fin	F	Strm	G	Wau	B.B.	DD	Eis	.....	Covt	A	3	Pet	Shel	W	Shel	½ Fl	7.8	28.47	Woh	34x3½	34x5	Bim	.....	4100	134	66
Koehler C	1985	H Sp 7000	3½x5	19.6	L	T	Own	.....	F	Zen	G	Sim	.....	DD	Eis	.....	MM	U	3	Spic	Math	I	Torb	D	7.1	23.1	Own	34x3	34x5	Way	.....	3300	131	75
Oneida A-9	2350	Oneida	3¾x5¼	22.4	L	C	Own	C	F	Strm	V	Own	Own	DP	.....	.....	Own	U	3	Own	Math	W	Own	½ Fl	7.75	31	.....	36x3½	36x5	.....	.....	4360	135	....
Reo F	1385	Own	4⅛x4½	27.2	L	C	Own	PT	S	John	G	.....	Own	DD	Rm	RE	Own	A	3	Own	Pen	B	Own	Flot	4.7	17.2	Own	34x4½*	34x4½*	Pru	Fir	2560	128	62.5
1½ Ton																																		
Acason RB	.....	Wau BUX	3¾x5¼	22.5	L	P	Can	C	S	Sheb	V	Wau	Full	.....	Eis	.....	Full	U	4	Bld	Det	W	Timk	.....	9.25	44.4	Ros	36x3½	36x6	Bim	Opt	3850	142	....
*Ace	.....	Buda WU	3¾x5⅛	22.5	L	T	Mod	ZZT	S	Sheb	G	.....	Full	DP	Eis	W	Full	A	3	UM	Math	W	Timk	½ Fl	7.75	30.1	Ros	34x3½	34x5	Sch	Fir	4750	144	80
*Acme F	2475	Cont J4	3¾x5	22.5	L	C	GO	Fin	F	Zen	V	Dup	B.B.	DP	Eis	Dl	Cott	U	3	Bld	Det	W	Timk	½ Fl	7.75	31	Ros	34x3½	34x5	Bim	.....	3830	141	50
Aetna 115	2775	Wis CAU	3¾x5½	22.5	L	P	GO	PT	F	Zen	G	Pier	B.B.	DP	Del	.....	Cott	A	4	Full	Shel	W	Shel	½ Fl	6	24	Ros	36x3½	36x5	.....	.....	3800	144	70
All American C 1½	2195	H-Sp 7000	3½x5	19.6	L	T	.....	T	FS	Strm	G	.....	Det	DP	Bos	Dy	Cott	U	4	Bld	Det	I	Torb	D	8.1	22.1	Lav	34x4	34x5	Stn	Gdy	2850	144	75
*Apex D	1915	Buda RU	3¾x5⅛	22.5	L	T	GO	C	F	Strm	V	.....	Full	D	AuL	Op	Full	U	3	UP	Det	I	Torb	D	8.1	24.1	Lav	32x3½	32x4	Roy	Fir	3070	130	70
Atco B	.....	Buda CTU	3¾x5¼	22.5	L	C	Chic	PT	F	Strm	G	.....	Full	D	Eis	W	Full	U	3	Hart	GC	W	Wis	W	7.25	29	Ros	34x5†	36x6*	Smi	.....	3900	132	....
Atterbury 20R	2775	Cont J4	3¾x5	22.5	...	G	Own	Fin	F	Zen	V	Sim	Full	DD	Ber	.....	Full	U	3	Spic	SP	W	Timk	¾ Fl	7.75	29	Ros	34x3½	34x5	Arc	Fir	4500	144	71¾
*Available H 1½	2750	Her CU3	4 x5⅛	25.6	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Tut	W	Timk	½ Fl	7	36.4	Ros	36x3½	36x5	Sch	.....	4400	145	75
Beck Hawkeye B	2150	Cont N-¾	3¾x5	22.5	L	T	.....	H	S	Strm	G	Pier	Full	DD	Bos	.....	Full	U	3	Bld	Hig	I	Cl	D	6.1	.....	Lav	36x6*	36x6*	.....	.....	3200	144	75
Bell E	2250	Buda	3¾x5¼	22.5	L	C	Chic	PT	F	Strm	V	Dup	B.B.	DP	Eis	.....	Det	U	3	UP	Det	Opt	Opt	Opt	8.8	25.7	Gem	35x5*	36x6*	Bim	Fir	3500	136	65
Belmont B	.....	Wis CAU	3¾x5	22.5	L	G	R-T	.....	F	Zen	V	Mon	B.B.	D	Eis	.....	.....	U	3	Ster	.....	I	Russ	D	7.7	23	Lav	34x4½*	34x5	E-O	Stn	3200	139	75
Bessemer H2	.....	Cont-N¾	3¾x5	22.5	L	T	.....	C	FS	Strm	G	.....	B.B.	DP	Bos	.....	B-Li	A	3	Arv	Per	I	Torb	D	8	27	Ros	36x3½	36x5	Sch	Fir	3600	144	63
Bridgeport A 1½	2350	Buda WU	3¾x5⅛	22.5	...	...	Own	Fin	FS	Strm	...	Pier	B.B.	D	Eis	.....	Cott	U	3	Hart	Per	W	Timk	.....	7.25	.....	Ros	34x3½	36x6	Arc	.....	3800	...	67
Brockway S-4	2250	Cont J-4	3¾x5	22.5	L	T	Bus	PT	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Mer	W	Shel	.....	7.8	31.2	Gem	36x3½	36x5	Hoo	.....	3550	140	70
Capitol G-1½	2975	Wis-CAU	3¾x5	22.5	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos	W	Cott	U	4	Spic	SP	W	Wis	½ Fl	6.2	32.3	Ros	35x5*	38x7*	.....	Fir	4600	144	85
*Chicago C1½	.....	Her-CU2	3¾x5⅛	22.5	L	C	.....	T	F	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	U	3	Pet	Math	W	Timk	½ Fl	7.2	25.8	Gem	36x3½	36x5	Opt	Stn	3800	144	....
*Climber A-2C	2450	H-Sp 7000	3½x5	28	L	T	Chic	ZZT	FS	Strm	V	.....	Hart	DP	AtK	W	Mun	U	3	Hart	Lah	I	Torb	.....	8	36.1	Ros	36x6*	38x7*	Roy	Fir	4150	146	75
Clydesdale 42 C	2750	Own CU3	4 x5⅛	25.6	L	G	Own	PT	F	Zen	V	Own	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Stan	W	Timk	½ Fl	7	23.3	Ros	36x3½	36x6	.....	.....	3495	151	72
Collier 19	.....	Cont N¾	3¾x5	22.5	T	P	Lng	PT	S	Zen	V	Mon	Full	DP	Eis	.....	Full	U	3	UP	Math	W	Timk	.....	7.75	31	Ros	36x4	36x6	Bim	Fir	4000	144	70
Columbia H	2150	Cont N	3¼x5	22.5	L	C	Lng	Fin	F	Strm	G	.....	B.B.	DP	Spl	.....	Cott	U	3	Spic	Per	I	Russ	.....	7.4	46	Own	35x5*	34x5	.....	.....	3800	140	....
Comet 1½	1950	Lyco-K	3½x5	19.6	L	T	Can	PT	FS	Cart	G	.....	B.B.	.....	Del	Dy	Mun	U	3	UP	Mar	W	Eat	.....	.....	.....	CAS	34x4*	34x4	.....	Fir	2898	130	85
Commerce EP	2255	Cont N	3¾x5	22.5	L	T	Lng	Fin	S	Zen	V	.....	DG	C	Eis	.....	Det	U	3	Spic	Det	I	Torb	D	7	22.9	Jac	36x6*	36x6*	Bim	Fir	3300	134	80
Concord A	2950	Buda ITU	4 x5½	25.6	L	C	Bus	PT	S	Zen	G	Mon	B-Li	DP	Eis	.....	B-Li	U	4	Spic	Per	W	Timk	½ Fl	8.75	35	Ros	36x3½	36x5	Arc	Fir	4150	140	70
Corbitt D	2800	Cont N¾	3¾x5	22.5	L	T	McC	Fin	FS	Strm	V	Sim	Full	DD	Eis	.....	Full	U	3	Hart	Shel	W	Shel	½ Fl	8.6	26	Ros	36x3½	36x5	Bim	Fir	4240	144	75
Cyclone A	2800	H-Sp	3½x5	19.6	L	T	Lng	PT	FS	Sheb	G	.....	W-Gr	D	Wes	W	W-Gr	U	3	Nor	Row	I	Torb	.....	8.23	26.66	Ros	34x5*	36x6*	Day	Opt	3200	136	75
Dart S	.....	Buda WU	3¾x5⅛	22.5	L	T	Own	C	S	Zen	V	Pier	Full	DD	Eis	.....	Full	U	3	Spic	Per	W	Own	.....	7.5	22.5	Ros	34x3½	34x6	Pru	.....	3800	140	80
Day Elder B	2300	Cont N	3¾x5	22.5	L	T	Bus	Fin	FS	Zen	G	.....	Covt	DD	Eis	.....	Covt	U	3	Hart	IC	W	Shel	½ Fl	8.75	32.03	Gem	34x3½	34x5	Jon	Fir	3500	144	70
Dearborn F	2180	Buda WU	3¾x5⅛	22.5	L	T	Chic	Fin	FS	Strm	V	.....	Full	DP	Bos	.....	Full	U	3	Arv	Tut	W	Wis	½ Fl	8.5	25.5	Lav	34x4	34x5	.....	.....	3280	126	70
Defiance D	2550	Own	3¾x5	22.5	L	T	Per	PT	FS	Strm	...	.....	B.B.	DP	Eis	.....	G-Le	...	3	Arv	Det	I	Torb	D	7	21	Own	35x5*	36x6*	StM	Fir	3200	140	85
Denby 33	2300	ContN¾	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	.....	Full	DD	Eis	Bj	Full	U	3	Up	Det	I	Cl	D	6.5	28.7	Gem	35x5*	38x7*	Hay	Fir	3800	136	65
Dependable C-1½	2350	Buda CTU	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	U	3	Acm	Per	W	Wis	½ Fl	8.2	31.5	Ros	34x3½	34x5	Bim	Fir	4120	Op	70
*Diamond T-Farm Spec.	2960	Hin	3¾x5¼	22.5	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Wis	½ Fl	8.2	29.9	Gem	36x3½	36x5	.....	.....	4150	144	....
*Diamond T—T	2650	Hin	3¾x5¼	22.5	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Timk	½ Fl	8.2	29.9	Gem	36x3½	36x5	.....	.....	4150	144	....
*Douglas G-1½	2050	Buda WU	3¾x5⅛	22.5	L	S	Own	PT	P	Sheb	V	.....	Full	DP	Eis	.....	Full	U	3	Arv	Own	I	Torb	D	8	23.1	Ros	24x3½	34x5	Own	Fir	3725	126	65
*Douglas GW	2050	Wei	3¾x5½	22.5	...	C	Own	PT	F	Sheb	V	.....	B.B.	DP	Eis	.....	G-Le	U	3	Arv	Own	I	Torb	D	8	23.1	Ros	24x3½	34x5	Own	Fir	3725	126	65
Erie 1½	.....	Buda-WU	3¾x5	22.5	L	T	McC	PT	FS	Strm	V	Pier	Full	D	Bos	.....	Full	U	4	Ster	Per	W	Shel	.....	.....	59.5	Ros	34x3½	36x5	Hoo	.....	4700	144	80
Fageol 1½	3000	Wau-BUX	3¾x5¼	22.5	L	C	Mod	C	S	Zen	V	Wau	Det	DD	Spl	.....	Own	U	5	UP	Math	W	Eat	½ Fl	5.6	59.5	Ros	34x3½	34x6	Pru	.....	4300	136	80
Federal TE	2725	Cont C4	4⅛x5¼	27.2	L	C	Own	PT	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Mat	W	Timk	Flot	8.5	37.4	Gem	36x3½	36x5	Sch	Fir	4050	144	68.5
Forschler AX	.....	Cont N	3½x5	19.6	L	C	Own	...	FS	Zen	...	Dup	Full	.....	Bos	Op	Full	...	3	Hart	Own	W	Shel	.....	.....	.....	Ros	36x3½	36x5	Smi	.....	3670	120	....

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted (1)	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't (2)	How Cooled (3)	Radiator (Make) (4)	Radiator (Type) (5)	Lubrication (6)	Carburetor (7)	Fuel Feed (8)	Governor (Make) (9)	Clutch (Make) (10)	Clutch (Type) (11)	Ignition System (12)	Engine Starter (13)	GEARSET: Make (14)	Location (15)	Speeds	Universal (Make) (16)	Springs (Make) (17)	REAR AXLE: Final Drive (18)	Make (19)	Type (20)	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make) (21)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make) (22)	Rim Equipment (23)	Chassis Weight	Wheelbase	Pr. Cent of Weight on Rear Wheels
1½ Ton—Con'd																																		
Front Drive C	2800	Buda CTU	3¾x5¼	22.5	L	G	EM	PT	S	Zen	...	Pier	B.B.	DD	Spl	Op	Own	A	3	Own	Own	W	Own	½Fl	8	32	Lav	34x5	34x5	Stn	.....	3200	Op	55
*Gary GT	2550	Buda IU	4 x5½	25.6	...	C	Chic	Fin	F	Mas	G	McC	Full	DD	Eis	.....	Full	U	3	Bld	Det	W	Timk	Flot	7.2	21.7	Ros	36x3½	36x5	Pru	Gdy	3800	144	68
Gersix M	3100	Buda ITU	4 x5½	25.6	L	C	Idl	C	F	Strm	V	Mon	B.B.	.....	Bos	.....	Cott	U	3	Bld	Tut	W	Shel	.....	7.7	31	Ros	36x3½	36x6	Jon	.....	4300	142	70
Giant 15A	2425	Cont N	3¾x5	22.5	L	T	Idl	.....	FS	Sheb	G	.....	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	.....	7.8	24.97	Jac	34x3½	34x5	Way	.....	2950	138	94
Graham Bros Speed Truck	2495	Cont N	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	Mon	Full	DD	Eis	Op	Full	U	3	Hart	Det	I	Torb	D	7	28	Lav	35x5*	36x6*	Det	Det	2950	133	80
Gramm Bernstein 15	2050	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Strm	G	.....	Full	DD	NE	NE	Full	U	3	Own	Per	I	Cl	D	7.6	30.4	Ros	36x3½	36x5	Bim	Fir	3800	138	90.5
Gramm Bernstein 65	2725	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Strm	G	.....	Full	DD	NE	NE	Own	A	3	Own	Per	W	Eat	½Fl	7.8	28	Ros	36x3½	36x5	Bim	Fir	4200	138	90.5
G. W. W. Farm Spec.	2100	Wei	3¾x5½	22.5	H	P	Chic	.....	F	Sheb	G	.....	Full	.....	Del	Del	Full	U	3	Acm	GC	I	Cl	.....	7	.....	Woh	35x5	35x5	Roy	Fir	3200	142	65
Hahn CD	.....	Cont C4	4⅛x5	27.2	L	C	Own	.....	F	Strm	G	Pier	.....	DD	Spl	.....	B-Li	...	3	Spic	.....	W	Timk	.....	6	.....	Ros	36x3½	36x6	.....	.....	4800	130	65
Harvey WEA	2550	Buda OU	4⅛x5½	27.2	L	G	.....	PT	F	Strm	G	Mon	Full	DD	Bos	.....	Full	U	3	Arv	Shel	W	Shel	.....	7.7	23.25	Ros	34x3½	34x5	StM	.....	3850	128	80
Hawkeye K	2365	Buda QU	3¾x5¼	22.5	L	C	.....	C	FS	Zen	G	Sim	Full	DD	Eis	.....	Full	U	3	Hart	Det	I	Cl	D	7.6	30.4	Ros	34x3½	34x5	Bim	Fir	3750	148	70
Hewitt-Ludlow	.....	Buda CTU	3¾x5¼	22.5	...	...	Mod	Fin	F	Strm	V	.....	.....	DP	Bos	.....	.....	...	3	Spic	.....	.....	Shel	½Fl	.....	.....	Ros	36x6*	36x6*	Sch	.....	.....	140	.....
Higrade B20	2500	Cont K4	4⅛x5¼	27.2	L	G	Per	PT	FS	Zen	V	.....	Full	DP	Eis	AL	Full	U	3	Bld	Per	W	Shel	.....	7.7	31	Lav	36x6	36x6	Det	Fir	3100	130	66
Hoover 20A	.....	Cont N	3½x5	19.6	L	G	Can	.....	F	Sheb	V	Pier	Full	.....	Spl	.....	Full	U	3	Arv	Shel	W	Shel	.....	7.8	23.4	Lav	36x4	34x5	E-O	Fir	3150	132	.....
H.R.L.-R.	3250	Hink	4 x5¼	25.6	L	C	Fed	Fin	F	Zen	V	Hin	B-Li	DP	Bos	GD	B-Li	U	4	Spic	Shel	W	Shel	D	7.75	30	Ros	36x4	36x7	Sch	.....	4560	144	.....
Huffman B	2075	Cont N	3¾x5	22.5	...	T	.....	C	F	Zen	G	Mon	Full	DD	Eis	.....	Full	U	3	.....	Per	I	Eat	D	8.6	.....	Lav	34x3½	36x6	Roy	Fir	3200	140	85
Huffman C	1875	Buda WU	3¾x5⅛	22.5	...	T	.....	C	F	Zen	G	Mon	Full	DD	Eis	.....	Full	U	3	.....	Per	W	Torb	.....	12.2	.....	Lav	34x3½	36x6	Roy	Fir	3350	140	85
Hurlburt	2850	Buda IU	4 x5½	25.6	L	C	Own	.....	FS	Flch	G	Dup	B-Li	D	Eis	.....	B-Li	U	3	Spic	Per	W	Emp	.....	.....	.....	Ros	34x4	34x5	Way	.....	4300	148	85
Independent E (Iowa)	2040	Cont N	3¾x5	22.5	L	C	GC	PT	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	3	Bld	GC	I	Russ	D	8.2	.....	Lav	34x3½	34x5	StM	Fir	3550	135	75
Independent F (Ohio)	2585	Cont N	3¾x5	22.5	L	G	Lng	PT	F	Strm	G	.....	Full	DP	Eis	.....	Full	U	3	Ster	Math	W	Wis	.....	8.2	33 1	Ros	36x3½	36x5	.....	.....	3400	140	85
International K	2400	Own-K	3½x5¼	19.6	L	C	Own	Fin	FS	Ens	G	Own	Own	DP	Bos	Own	Own	A	3	Own	.....	I	Own	D	9	30	Own	36x3½	36x5	Own	.....	3400	128	50
Jumbo 15	2425	Buda CTU	3¾x5¼	22.5	L	C	Own	Fin	F	Zen	G	.....	Full	D	NE	NE	Full	U	3	Arv	Per	I	Cl	D	7.2	28.8	Jac	36x3½	36x5	.....	.....	4530	144	75
Kalamazoo G	3100	Cont J4	3¾x5	22.5	L	P	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Ful	A	4	Acm	Shel	W	Wis	½Fl	8.2	41	Ros	36x4	36x5	Bim	.....	5080	144	80
Kearns 1½	2200	H-Sp 7000	3½x5	19.6	L	T	Own	H	S	Zen	V	Pier	B.B.	DD	Ber	Dy	G-Le	U	3	ME	Math	I	Torb	D	8	24	Lav	34x3½	34x6	Way	.....	3400	136	60
Kelly-Springfield K31	2900	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	Own	Per	C	Own	D	8.6	31.58	Gem	36x3½	36x6	StM	.....	4420	144	89
Kelly-Springfield K34	2900	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	3	Spic	Per	W	Shel	½Fl	8.6	31.78	Gem	36x3½	36x6	StM	.....	4670	144	89
Kissel General Utility	2775	Own 40000	3⅞x5½	24.1	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	.....	W-Gr	U	3	Spic	Mat	W	Shel	½Fl	7.8	28.5	Jac	36x3½	36x5	Pru	.....	4000	152	70.5
Kleiber A	3100	Cont C4	4⅛x5¼	27.2	L	C	Per	C	...	Strm	G	.....	.....	WD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	¾Fl	7.1	37.51	Ros	36x3½	36x6	W-L	.....	5200	143	75
Larrabee-Deyo U	2400	Cont N¾	3¾x5	22.5	L	C	Bus	Fin	S	Sheb	G	Sim	B-Li	DD	Bos	.....	B-Li	U	3	.....	Mer	W	Shel	½Fl	7.6	25.5	Ros	34x3½	34x5	Hoo	.....	3600	138	.....
*Luedinghaus W	2700	Wau BUX	3¾x5¼	22.5	L	G	Own	Pit	FS	Sheb	G	Wau	B.B.	D	Spl	.....	Det	U	3	Spic	Tut	W	Wis	½Fl	8.6	26.6	Lav	34x3½	34x5	StM	.....	4100	144	75
Maccar L	2925	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Mer	W	Timk	½Fl	7	23.52	Ros	36x4	36x6	Day	Fir	4300	150	70
*Mack AB1½	3000	Own	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	6.9	28.01	Own	36x4	36x3½†	Sch	.....	4800	Op	68
*Mack AB1½	3450	Own	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	R	Own	Flot	7.6	34.09	Own	36x4	36x3½†	Sch	.....	4900	Op	68
Master JW	2690	Buda OU	4⅛x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DP	Eis	.....	Full	U	3	Spic	Det	W	Timk	½Fl	7.7	23.25	Ros	34x3½	34x5	Pru	.....	3900	142	78
Maxwell	1497	Own	3⅝x4½	21.	L	T	Own	PT	FS	.....	G	.....	Own	C	.....	.....	Own	U	3	Own	.....	W	Own	½Fl	7.25	34.4	Own	35x5	35x5	.....	.....	2385	124	50
Menominee H	2725	Wis EAU	4 x5	25.6	L	C	.....	Fin	FS	Strm	G	Mon	Det	DP	Eis	.....	Cott	U	3	Spic	Tut	W	Wis	.....	8.25	30.36	Ros	36x3½	36x5	Stn	Fir	.....	144	80
Moline 10	2250	Own NT	3½x5	19.6	H	T	Mod	C	F	Till	G	Phar	.....	DP	Spl	.....	Own	U	3	Arv	Math	I	Torb	.....	8	38	Ros	34x5*	36x6*	.....	Fir	.....	130	.....
*Moreland 20B	3125	Cont K4	4⅛x5¼	27.2	L	C	Own	C	FS	Mas	G	.....	Own	DD	Spl	.....	Own	A	4	Ther	US	W	Timk	.....	7	33.88	Ros	36x3½	36x6	Smi	.....	4150	126	.....
Napoleon 11	1860	Vict	3½x5	19.6	H	T	Own	PT	F	Sheb	G	.....	Full	D	Con	AL	Full	U	3	Bld	Math	I	Torb	D	8	24	Lav	35x5*	36x6*	.....	Fir	3450	133	65
Nelson-LeMoon F1½	.....	Cont C4	4⅛x5¼	27.2	L	C	Chic	Fin	S	Strm	G	Pier	B-Li	DD	Bos	W	B-Li	U	3	Own	Tut	W	Timk	.....	7	.....	Lav	36x3½	36x6	Pru	Gdy	3400	Op	80
Noble B30	.....	Buda CTU	3¾x5¼	22.5	L	C	Chic	Fin	F	Strm	G	Pier	Full	DD	Eis	W	Full	U	3	M-E	Tut	W	Shel	½Fl	8.7	31.1	Lav	36x3½	36x5	Bim	Fir	4680	156	85
Norwalk	2025	Lyco K	3½x5	19.6	L	T	Stan	C	FS	Zen	V	.....	B.B.	.....	Del	Dy	G-Le	...	3	UM	SPar	W	Shel	¾Fl	7.75	.....	CAS	343½	34x5	.....	.....	3200	143	75
Norwalk 35 E Special	2285	Buda CTU	3¾x5¼	22.5	L	G	Stan	C	FS	Zen	V	.....	B.B.	D	Del	Dy	G-Le	U	3	Spic	Stan	W	Shel	½Fl	.....	.....	Det	34x4*	34x5	E&O	Fir	3450	143	43
O. K. 1½T	2675	Buda ITU	4 x5½	25.6	L	G	R-T	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	U	3	Hart	Cham	W	Wis	½Fl	8.25	24.8	Ros	36x3½	36x5	Bim	.....	.....	146	.....
*Ogden A1	2350	Cont N	3¾x5	22.5	L	T	Chic	PT	FS	Rayf	G	Pier	B-Li	DD	Bos	.....	B-Li	U	3	M-E	Tut	W	Shel	.....	8.75	.....	Gem	36x3½	36x5	Stn	.....	3400	136	70
Old Reliable A	2500	WisEU	4 x5	25.6	L	C	Chic	PT	FS	Strm	V	Mon	Full	DD	Bos	Op	Full	U	3	Spic	Shel	W	Shel	½Fl	7.7	24.94	Ros	34x3½	36x6	StM	.....	4150	138	90
Oneida B9	2915	Oneida	4 x5¼	25.6	L	C	Own	C	F	Strm	V	Own	Own	DP	.....	.....	Own	A	3	Own	Math	W	Own	½Fl	8.25	33	.....	36x3½	36x6	.....	.....	5025	144	.....
*Orleans A	.....	Her CU2	3¾x5⅛	22.5	L	C	Chic	PT	F	Mas	G	.....	Det	DD	Eis	.....	Cott	U	3	Bld	Mar	W	Wis	½Fl	7	.....	Ros	36x3½	36x5	Smi	Fir	.....	148	80
*Paige 52-19	2880	HinHAA400	4 x5¼	25.6	L	C	Own	Fin	F	Strm	V	Hink	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Per	W	Timk	½Fl	7.7	37.51	Ros	34x3½	34x5	Own	Fir	4000	140	85
Premocar	2350	Lyc-K	3½x5	19.6	L	T	.....	C	S	Zen	V	.....	BB	.....	Del	Dyn	G-L	U	3	Spic	Shel	W	Timk	.....	7	.....	Dit	36x6	36x6	.....	Fir	4200	130	70
Rainier R16	2500	Cont N	3¾x5	22.5	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	.....	B-Li	U	3	Hart	Per	W	Shel	.....	7.8	.....	Lav	34x3½	34x5	.....	Fir	3600	147	80
*Reliance 10A	2500	Buda ITU	4 x5½	25.6	L	C	Bus	PT	FS	Strm	G	Pier	Full	DD	Eis	.....	Full	U	3	Pet	Shel	P	Badg	D	6.6	19.8	Ros	34x3½	34x5	Bim	Gdy	4500	150	90
*Republic 11X	2295	Cont N3¾	3¾x5	22.5	L	T	Own	C	FS	Strm	G	Rug	Full	DD	Bos	.....	Full	U	3	Hart	Math	I	Torb	D	8	18.84	Jac	34x4	34x6	Nor	Fir	3400	144	.....
Reynolds 3A	.....	HinHAA400	4 x5¼	25.6	L	C	Lng	Fin	F	Strm	G	Hink	Covt	DD	Bos	W	Covt	A	4	Sned	Per	W	Shel	.....	6.5	30.62	Lav	36x6*	38x7*	Smi	.....	.....	144	75
Rowe CW1½	3000	Wis CAU	3¾x5	22.5	L	C	Fed	H	F	Zen	G	Sim	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Shel	W	Shel	½Fl	6.5	26	Ros	36x6*	36x6*	Hoo	.....	3800	133	69.1
Royal 1½	.....	Wis EAU	4 x5	25.6	L	C	.....	H	...	Strm	...	.....	.....	D	Bos	Op	Own	...	..	Own	Mer	W	Timk	.....	.....	.....	Ros	34x4	34x5	.....	.....	.....	128	67
Rumely A	2720	Buda CTU	3¾x5¼	22.5	T	G	Mod	ZZT	F	Strm	G	Pier	Full	DP	Spl	.....	Full	U	3	Bld	Mat	W	Shel	½Fl	7.8	31.2	Gem	36x3½	36x5	.....	Gdy	4100	144	75
*Sandow CG	2590	Cont N¾	3¾x5	22.5	L	T	.....	Fin	FS	Strm	G	.....	.....	DD	Eis	.....	Full	U	3	Spic	GC	W	Shel	.....	7.8	23	Ros	34x3½	34x5	StM	.....	3300	135	70
Schwartz BI	2485	Cont N¾	3¾x5	22.5	L	T	Fed	H	FS	Strm	G	Mon	M-E	DD	Bos	.....	Dun	U	3	M-E	Row	I	Torb	.....	8	26.9	Ros	34x3½	34x5	Sch	Fir	3750	140	.....
Schwartz BW	2600	Buda CTU	3¾x5¼	22.5	L	C	Fed	.....	F	Strm	G	Mon	M-E	D	Bos	.....	Dun	U	3	M-E	Row	W	Shel	.....	6.5	24.6	Ros	36x3½	34x6	Sch	Fir	4400	140	.....
Selden 1½A	2360	Cont N	3¾x5	22.5	L	T	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	.....	B-Li	U	3	Spic	Per	W	Timk	½Fl	7	23.31	Lav	34x3½	34x5	Arc	.....	3560	137	57
Service 31	2985	Buda IU	4 x5½	25.6	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	.....	W	Timk	.....	7.75	37.5	Ros	36x3½	36x6	Bim	.....	4850	150	65
Service 36	3415	Buda HU	4¼x5½	28.9	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	.....	W	Timk	.....	7	33.8	Ros	35x5*	38x7*	Bim	.....	4900	150	65
Signal H	2925	Cont C4	4⅛x5¼	27.2	L	C	McC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	½Fl	7.75	31	Ros	34x4	36x6	Hay	.....	4760	146	66
Southern 15	2590	Cont N	3¾x5	22.5	L	T	R-T	PT	S	Zen	...	Pier	Full	DD	Bos	.....	Full	U	3	.....	Shel	W	Shel	.....	.....	.....	Ros	34x3½	35x5	.....	.....	.....	144	70
Sterling 1½	3200	Ster FU	4x5¾	25.6	L	C	Own	C	F	Rayf	V	Wau	B-Li	DD	Eis	.....	B-Li	U	4	Spic	Mat	W	Timk	½Fl	7	28	Ros	36x3½	36x5	Pru	.....	4720	142	91
Stewart 9	2200	Cont N¾	3¾x5	22.5	...	T	Bus	PT	FS	Zen	G	.....	Full	DP	Eis	.....	Full	U	3	Hart	Det	I	Cl	D	7.6	22.8	Gem	34x3½	34x5†	Way	Fir	3440	140	70
Stoughton B	2350	Wau BUX	3¾x5¼	22.5	L	C	Own	Fin	FS	Strm	G	Wau	B-Li	DD	Eis	.....	B-Li	U	3	Ther	Shel	W	Shel	½Fl	7.8	31.2	Lav	36x3½	36x5	Bim	Gdy	3800	140	71
Sullivan F	2350	Buda M	3¾x4½	22.5	L	T	.....	PT	F	Strm	G	.....	.....	C	Bos	.....	Covt	A	3	Hart	Mer	W	Timk	.....	8.5	31	Ros	36x3½	36x5	Way	.....	3500	129	60
Texan TK 39	.....	Lyco K	3½x5	19.6	L	T	.....	C	FS	Cart	V	.....	B-Li	D	Con	Bj	G-Le	U	3	UP	.....	W	.....	½Fl	7.7	20.15	CAS	34x4	34x4	Bim	Fir	3200	130	60
Tiffin GW	2695	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Sheb	G	Pier	Full	DD	Bos	W	Full	U	3	Pet	Kal	W	Shel	.....	7.7	23.25	Ros	36x3½	36x5	Smi	.....	3750	135	80
Tower J1½	3000	Cont C4	4⅛x5¼	27.2	L	C	Own	PT	S	Zen	G	.....	Full	DP	Eis	.....	Full	U	3	Bld	Det	W	Timk	½Fl	7.25	29	Ros	35x5*	38x7*	Pru	Fir	4520	142	70
Transport 30	2250	Cont N	3¾x5	22.5	L	T	Mod	C	FS	Strm	G	Sim	Full	DD	Eis	.....	Full	U	3	Hart	Det	I	Cl	D	7.6	30.4	Jac	36x3½	36x5	.....	Fir	3450	140	70
*Traylor B	2500	Buda WU	3¾x5⅛	22.5	L	C	GO	Fin	F	Zen	G	Pier	.....	DD	Spl	.....	Covt	...	3	Hart	Mer	W	Shel	½Fl	6.5	.....	Ros	34x3½	34x6	Sch	.....	3800	132	75

Triangle A	2250	Wau BUX	3¾x5¼	22.5	L	C	Per	ZZT	FS	Strm	G	Wau	Full	DD	Eis	.....	Full	U	3	UP	Det	I	Cl	.....	7.1	21	Gem	34x3½	34x6	Roy	Fir	3750	144	99
*Triumph H 1½	2400	Buda CTU	3¾x5¼	22.5	L	C	Chic	Fin	F	King	V	Pier	B.B.	D	Spl	.....	Cott	U	4	UP	Tut	I	Rus	.....	7.4	35.4	Lav	36x3½	36x5	Stn	Stn	4100	144	70
*Triumph HC 1½	2550	Buda CTU	3¾x5¼	22.5	L	C	Chic	Fin	F	King	V	Pier	B.B.	D	Spl	.....	Cott	U	4	UP	Tut	W	Wis	.....	7.25	37.7	Lav	36x3½	36x5	Stn	Stn	4300	144	70
Ultimate A	3200	Buda ITU	4 x5½	25.6	L	C	Own	Fin	F	Strm	G	Pier	B-Li	DD	Eis	W	B-Li	U	4	Spic	Shel	W	Shel	.....	6.5	.....	Ros	36x3½	36x6	Jon	Fir	4500	156	72
United A–1½	2445	Buda CTU	3¾x5¼	22.5	L	C	Mod	PT	F	Strm	G	Sim	Full	DD	Eis	Op	Full	U	3	Bld	Bea	I	Cl	D	7.6	30.4	Ros	34x3½	34x5	Pru	Fir	4000	145	70
U. S.–N.	.....	Cont N	3¾x5	22.5	...	C	Lng	Fin	...	Strm	V	.....	B-Li	DD	Eis	Op	B-Li	U	3	Opt	Shel	I	Cl	D	7.6	25.3	Lav	36x3½	36x5	Sch	.....	3800	144	85
U. S.–N. C.	.....	Cont N	3¾x5	22.5	...	C	Lng	Fin	...	Strm	V	.....	B-Li	DD	Eis	Opt	B-Li	U	3	Opt	Shel	I	Cl	D	7.6	25.3	Lav	35x5*	38x7*	Sch	.....	3800	144	85
U. S.–N. P.	.....	Cont N	3¾x5	22.5	...	C	Lng	Fin	...	Strm	V	.....	B-Li	DD	Eis	Opt	B-Li	U	3	Opt	Shel	W	Shel	½ Fl	7.8	25.97	Lav	35x5*	38x7*	Sch	.....	3900	144	85
U. S.–N W	.....	Cont N	3¾x5	22.5	...	C	Lng	Fin	...	Strm	V	.....	B-Li	DD	Eis	Op	B-Li	U	3	Opt	Shel	W	Shel	½ Fl	7.8	25.97	Lav	36x3½	36x5	Sch	.....	3900	144	85
Velie 46	2200	Cont N¾	3¾x5	22.5	L	C	Own	PT	FS	Strm	G	Mon	B.B.	D	Ber	.....	Durs	U	3	Arv	Mat	I	Torb	D	8	37.4	Ros	36x3½	36x5	Bim	Gdy	3650	133	80
White Hickory H	.....	Cont N¾	3¾x5	22.5	L	C	Chic	Fin	FS	Strm	V	Sim	Full	DD	Eis	.....	Full	U	3	Arv	Shel	W	Timk	.....	8.5	25.5	Ros	36x3½	36x5	Bim	Fir	3750	144	76
Wichita L	2600	Wau BX	3¾x5¼	22.5	L	P	Per	C	F	Strm	G	Wau	Own	C	.....	.....	.....	A	4	Own	Det	W	Shel	½ Fl	8.66	45.03	Ros	36x3½	36x5	Bim	Fir	4100	144	80
Wilcox B	.....	Own	4¼x5	28.9	L	P	.....	PT	S	Strm	G	Dup	Own	C	Bos	.....	Own	A	4	Own	Shel	W	Wis	½ Fl	8.25	39.9	Own	36x4	36x5†	.....	.....	4600	135	75
Wilson F	2650	Own	3¾x5¼	22.5	L	P	.....	PT	FS	Mar	G	Pier	B.B.	D	Eis	.....	Own	A	4	Ther	Per	W	Timk	.....	6	24	Ros	36x3½	36x5	.....	.....	3800	142	75
Winther 39	2450	Wis CAU	3¾x5	22.5	L	P	Brm	PT	F	Strm	G	.....	Full	DD	Eis	W	Full	U	3	Pet	Det	I	Cl	D	7	21	Lav	34x3½	34x5	Own	Fir	3700	140	70
Winther 430	2850	Wis CAU	3¾x5	22.5	L	P	Brm	PT	F	Strm	G	.....	Full	DD	Eis	W	Full	U	3	Pet	Det	I	Cl	D	9	36	Lav	32x4	32x4	Own	Fir	4100	132	70
*Witt Will N	2250	Cont C4	3¾x5¼	22.5	H	G	Mod	C	FS	Zen	G	Pier	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Del	W	Timk	.....	7	30. 36	Ros	36x3½	36x4	Arc	.....	4000	120	67
Wolverine C	.....	Cont N	3¾x5	22.5	L	T	Lng	Fin	FS	Strm	G	Mon	Full	DP	Eis	GD	Full	U	3	UP	Tut	I	Russ	D	8.2	32.8	Gem	34x3½	34x5	Hay	Gdy	3400	140	77
Wolverine D	.....	Cont N	3¾x5	22.5	L	T	Lng	F	FS	Strm	G	Mon	Full	DP	Eis	GD	Full	U	3	UP	Tut	I	Rus	D	10.2	40.8	Gem	34x4	34x7	.....	Gdy	4250	148	80
*Yale A	2800	H-Sp 7000	3½x5	19.6	L	A	.....	PT	FS	Strm	G	.....	B.B.	D	Wes	W	Cott	...	3	.....	SP	W	Dun	Flot	.....	.....	Ros	35x5	35x5	.....	.....	3970	132	70
2 Ton																																					
Acason H	.....	Wau CU	4⅜x5¾	30.6	L	P	Can	C	FS	Sheb	V	Wau	Det	....	Eis	.....	Cott	A	4	Bld	Det	W	Timk	.....	7.75	40.3	Ros	36x4	36x8	Smi	Opt	5400	150	....
*Acme A	3050	Cont C4	4⅛x5¼	27.2	L	C	GO	Fin	FS	Rayf	V	Dup	B.B.	DP	Eis	.....	Cott	U	4	Bld	Det	W	Timk	Flot	8.5	44.2	Ros	36x4	36x7	Bim	.....	4750	148	50
Autocar F	2300	Own 2F	4¼x4½	18	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	3	.....	.....	R	Own	Flot	8.3	33.2	Own	34x4	34x5	Hoo	.....	3430	97	65
Autocar G	2400	Own 2G	4¼x4½	18	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	3	.....	.....	R	Own	Flot	8.3	33.2	Own	34x4	34x5	Hoo	.....	3690	120	65
Beck Hawkeye C	2450	Cont C4	4⅛x5¼	27.2	L	P	.....	C	F	Strm	G	Pier	Full	DD	Bos	.....	Full	U	3	Bld	Hig	I	Cl	D	9	.....	Lav	36x6*	40x8*	Hay	Fir	4000	144	70
Belmont C	.....	Wis TAU	4 x6	25.6	L	P	R-T	.....	F	Zen	V	Mon	B.B.	D	Eis	.....	.....	U	4	UP	Math	I	Russ	D	8	24	Lav	36x4	36x7	E-O	Stn	4300	150	75
Bethehem G	2595	Own G	4 x5¼	25.6	L	P	Liv	C	F	Zen	V	Pier	B.B.	DP	Bos	GD	Det	U	4	UP	Math	W	Timk	.....	8.5	40.8	Ros	36x4	36x7	Bim	Fir	4800	152	70
Collier 20	.....	Cont C4	4⅛x5¼	27.2	T	P	Lng	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	U	4	Bld	Per	I	Ken	D	.....	.....	Lav	36x6	38x7*	StM	Fir	5000	152	....
Cook 41	3000	Her CU3	4 x5½	25.6	L	G	Own	PT	...	.....	G	.....	B.B.	DD	Ber	.....	.....	U	4	Bld	Per	I	Ken	D	.....	.....	Lav	36x6	38x7*	StM	Fir	5000	152	....
Corbitt C	3500	Cont C4	4⅛x5¼	27.2	L	C	McC	Fin	FS	Strm	V	Sim	B-Li	DD	Eis	.....	B-Li	U	3	Hart	Shel	W	Shel	½ Fl	8.7	29.4	Ros	36x3½	36x7	Bim	Fir	5125	148	75
Day Elder D	2750	Cont C2	4⅛x5¼	27.2	L	C	Bus	Fin	FS	Zen	G	Mon	Covt	DD	Eis	.....	Covt	U	4	Hart	IC	W	Shel	½ Fl	8.66	41.17	Gem	36x4	36x7	Jon	Fir	4250	144	70
Dearborn 48	2590	Buda WU	3¾x5½	22.5	L	T	Chic	Fin	FS	Strm	V	.....	Full	DP	Bos	.....	Full	U	3	Hart	.....	W	Wis	½ Fl	9.6	28.8	Dit	34x4½*	34x7	.....	.....	3750	148	70
Defiance E	2750	Own	3¾x5	22.5	L	T	Per	C	FS	Strm	...	.....	B.B.	DP	Eis	.....	G-Le	...	3	Arv	Det	I	Torb	D	8	24	Own	35x5*	38x7*	StM	Fir	3500	140	85
Denby 134	2800	Cont N¾	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	Mon	Full	DD	Eis	.....	Full	U	4	Up	Det	I	Russ	D	8.85	42.5	Ros	36x3½	36x6	Hay	Fir	3950	144	75.5
Dependable D 2	2650	Buda ITU	4x5½	25.6	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	U	4	Spic	Per	W	Wis	½ Fl	8.5	35.75	Ros	36x4	36x7	Bim	Fir	5300	144	70
*Diamond T–U	3285	Hin	4 x5½	25.6	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	4	Spic	Math	W	Timk	Flot	7.8	36.81	Gem	36x4	36x7	.....	.....	4800	160	....
*Dorris K4	3400	Own	4¼x5½	28.9	H	C	McC	Fin	F	Strm	G	Own	Own	DP	Bos	.....	W-Gr	A	4	Spic	Row	W	Timk	Flot	7.75	38.67	Ros	36x4	36x7	Smi	Fir	5150	162	70
*Douglas H	2550	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	V	Pier	Full	DP	Eis	.....	Full	U	3	Arv	Own	I	Torb	D	8.50	28.1	Ros	34x4	36x7	Own	Fir	3900	128	65
*Douglas HW–2	2650	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	V	Pier	Full	DP	Eis	.....	Full	U	3	Arv	Own	W	Wis	.....	8.75	29.1	.....	34x4	36x7	Own	Fir	3950	132	65
Duplex A	2775	Hink HAA	4 x5¼	25.6	L	P	Mod	PT	F	Strm	G	.....	Covt	DD	Wes	W	Covt	U	3	Pet	Penn	W	Shel	½ Fl	.....	.....	Ros	35x5*	38x7*	Pru	.....	3900	145	....
*Duty 2	1490	Gr-B	3½x5	19.6	I	T	Eur	C	FS	Zen	G	.....	Covt	DP	Spl	.....	Covt	U	3	Acm	Det	I	Russ	D	8.2	30.01	Dit	34x3½	34x5	Stn	Fir	3350	134	70
Eagle 100	2275	Buda CTU	3¾x5¼	22.5	L	P	Own	C	F	Zen	G	.....	.....	DD	Eis	.....	Covt	U	3	M-E	Cham	I	Russ	D	8.8	31.8	Lav	34x3½	34x6	Stn	Fir	4100	130	75
Erie 2	.....	Buda HTU	4¼x5½	28.9	L	T	McC	.....	FS	Strm	G	Pier	Full	D	Bos	.....	Full	A	4	Spic	Per	W	Shel	.....	.....	.....	Ros	36x4	36x5	Hoo	Fir	5100	150	80
Fargo P	2800	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Rayf	G	.....	Full	DP	Bos	.....	Full	U	4	Spic	Shel	I	Russ	D	9.5	.....	Jac	36x4	36x6	.....	.....	3900	144	80
Federal UE	3025	Cont C4	4⅛x5¼	27.2	L	C	Own	PT	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	9.25	40.7	Gem	36x4	36x7	Sch	Fir	4800	156	71.5
Forschler B	.....	Cont C4	4⅛x5¼	27.2	L	C	E-M	.....	FS	Zen	...	Dup	Full	.....	Bos	Op	Full	...	3	Hart	Own	W	Shel	.....	.....	.....	Ros	34x4	36x7	Smi	.....	4425	137	....
*Fulton C	2350	HSp7000	3½x5	19.6	L	T	GO	H	FS	Cart	G	.....	Covt	DP	Ber	.....	Covt	...	3	UP	.....	I	Russ	D	10.2	.....	Lav	34x4	34x6	Hoo	.....	4300	137	68
Garford 70 H	.....	Buda HTU	4¼x5½	28.9	L	T	Own	Fin	F	Strm	G	Sim	B-Li	DD	Spl	.....	Own	A	4	Spic	Per	W	Timk	Flot	7.75	.....	Ros	34x3½	34x6	.....	.....	4590	144	....
G. M. C. K-41	.....	Own	4 x5½	25 6	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	.....	Own	U	7	Own	Det	W	Timk	Flot	7.25	.....	Own	36x4	36x7	Own	.....	5030	Op	Opt
Gramm-Bernstein 20	3175	Cont C2	4⅛x5¼	27.2	L	C	Own	Fin	S	Strm	G	Pier	Full	DD	NE	NE	Own	A	4	Own	Per	W	Shel	½ Fl	7.7	36.7	Ros	36x4	36x7	Bim	Fir	5050	144	91
Hahn DE	.....	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	F	Strm	G	Pier	.....	DD	Bos	...	B-Li	...	3	Spic	.....	W	Shel	.....	7	.....	Ros	36x4	36x7	.....	.....	4300	140	65
Hal-Fur D	2350	Hin HA-400	4 x5½	25.6	L	C	GO	PT	F	Strm	V	Hin	B.B.	P	Bos	W	B-Li	A	4	Pet	Per	W	Timk	½ Fl	5.5	24	Gem	35x5*	35x5*	Stn	Fir	3400	Op	70
Hawkeye M	2915	Buda HU	4¼x5½	28.9	L	C	.....	C	FS	Zen	G	Sim	Full	DP	Eis	.....	Full	U	4	Hart	Det	I	Cl	D	8	43.2	Ros	36x4	36x6	Bim	Fir	4500	148	....
Hewitt-Ludlow–W'rm Drive	.....	Buda ITU	4 x5½	25.6	...	...	Mod	Fin	...	Strm	V	.....	.....	DP	Bos	.....	.....	...	3	Spic	.....	...	Shel	½ Fl	.....	.....	Ros	36x4	36x6	Sch	.....	.....	140	....
H & M 2	.....	Her	3½x5	19.6	...	T	GO	.....	FS	Cart	G	.....	Full	....	Bos	Dy	Full	U	4	Ther	Mat	I	Torb	D	Opt	Opt	Lav	34x4	38x7*	.....	Fir	3400	144	75
Indiana 20	2950	Own 38	4⅛x5½	27.2	L	T	McC	Fin	F	Strm	G	Pier	B.B.	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½ Fl	7.7	39.5	Woh	36x4	36x7	Day	.....	5360	150	68
International G	2800	Own G	4¼x5	28.9	H	T	Own	Fin	FS	Ens	G	Own	Own	DP	Spl	Own	Own	A	3	Own	.....	I	Own	D	9	30	Own	36x4	36x6	Own	.....	4010	138	50
J and J-D	3250	Wis EAU	4 x5	25.6	L	G	Chic	Fin	F	Zen	G	Mon	B.B.	.....	Amr	Opt	Cott	U	4	UM	Math	I	Russ	.....	8.8	46	Lav	34x4	34x6	Bim	.....	4000	132	85
Jumbo 20	2675	Buda CTU	3¾x5¼	22.5	L	C	Own	Fin	F	Zen	G	.....	Full	D	NE	NE	Full	U	3	Arv	Per	I	Cl	D	7.6	30.4	Jac	35x5*	38x7*	.....	.....	4510	144	75
Keystone 2	2450	Buda WU	3¾x5½	22.5	L	C	McC	PT	S	Zen	G	Pier	Full	DD	Ber	.....	Full	U	3	Spic	Row	I	Russ	D	8.8	26.6	Ros	34x5*	38x7*	Hoo	Gdy	4000	144	75
*Kimball B	3675	Wis TAU	4 x6	25.6	L	C	Flex	PT	F	Mas	V	Dup	B-Li	DP	Ber	W	B-Li	U	4	Spic	US	W	Shel	½ Fl	6.5	26	Ros	36x4	36x7	Smi	Fir	4900	Op	66
King Zeitler	.....	Cont C4	4⅛x5¼	27.2	L	C	.....	.....	FS	Strm	G	.....	B-Li	DD	Bos	.....	B-Li	U	4	Ther	Tut	W	Timk	Flot	7.7	37	Lav	36x4	36x7	StM	.....	4600	150	80
Kleiber BB	3600	Cont C4	4⅛x5¼	27.2	L	C	Per	C	...	Strm	G	Pier	.....	WD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	Flot	7.75	37.51	Ros	36x4	36x7	W-L	.....	5600	153	75
Lange B	3350	Cont C4	4⅛x5¼	27.2	L	G	Own	H	S	Strm	G	Pier	M-E	D	Bos	.....	Cott	A	3	M&E	IC	C	Own	D	9.22	46.6	Gem	36x4	36x6	Hoo	Opt	5200	136	90
*Luedinghaus K	3150	Wau RU4R	4¼x5¾	28.9	L	C	Own	PT	FS	Sheb	G	Wau	B.B.	.....	Spl	.....	Det	U	3	Spic	Tut	W	Wis	½ Fl	8.6	26.6	Lav	36x4	36x7	Bim	.....	4400	145	75
*Luedinghaus K-LS	3250	Wau RU4R	4¼x5¾	28.9	L	C	Own	PT	FS	Sheb	G	Wau	B.B.	.....	Spl	.....	Det	U	3	Spic	Tut	W	Wis	.....	8.6	26.6	Lav	36x4	36x7	Bim	.....	4500	170	75
Luverne BBL	.....	GBS	3¾x4¼	22.5	L	C	.....	C	S	Sheb	G	.....	.....	D	Bos	Dy	Det	U	3	UP	.....	I	.....	D	8	30	Lav	34x4*	34x5	Own	Fir	.....	136	.....
*Mack AB2	3300	Own	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	6.9	28.01	Own	36x4	36x4†	Sch	.....	4900	Op	71
*Mack AB2	3750	Own	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	R	Own	Flot	7.6	34.09	Own	36x4	36x4†	Sch	.....	5000	Op	75.5
Marshall 2	.....	.....	3½x5	19.6	L	C	.....	.....	...	.....	...	.....	B.B.	.....	.....	.....	.....	...	3	.....	.....	W	.....	.....	.....	.....	.....	34x5	34x5	.....	.....	.....	132	....
Menominee D	3245	Wis TAU	4 x6	25.6	L	C	.....	Fin	FS	Strm	G	Mon	Det	DP	Eis	.....	Cott	U	4	Spic	Tut	W	Wis	.....	8.6	45.13	Ros	36x4	36x4*	Stn	Fir	.....	160	80
*Mutual 2B	3450	Wis TAU	4 x6	25.6	L	G	GO	PT	F	Strm	G	Dup	M-E	D	Bos	W	Cott	A	4	HS	Mat	W	Shel	Flot	7.7	40.2	Ros	36x4	36x8	Smi	.....	6000	152	71
Nash 3018	2550	Own 4	3¾x5¼	22.5	L	C	.....	.....	F	Strm	G	Sim	B.B.	DP	Eis	.....	.....	A	4	Own	Mat	I	Cl	D	9	39.6	Lav	34x4	34x6	AuW	.....	3850	144	73.5
Nash Quad 4017	3250	Buda HU	4¼x5½	28.9	L	C	.....	.....	F	Strm	G	Sim	B.B.	DP	Eis	AL	.....	A	4	Spic	Mat	I	Own	D	8.5	42.3	Lav	36x5	36x5	.....	.....	6250	124	55
*Netco D	‡3100	Cont C4	4⅛x5¼	27.2	L	C	R-T	PT	S	Zen	G	.....	B-Li	DP	Eis	.....	B-Li	A	3	Hart	Per	W	Timk	Flot	9.25	36	Ros	36x4	36x7	Arc	Gdy	5200	Op	80
Niles E	3000	Cont C4	4⅛x5¼	27.2	L	C	Mod	Own	...	Strm	G	Pier	B.B.	D	Eis	.....	Covt	A	3	Bld	IC	W	Timk	Flot	8.5	28	Gem	36x4	36x7	Hoo	Fir	5800	140	....
Noble C40	.....	Buda ITU	4 x5½	25.6	L	C	Chic	Fin	F	Strm	G	Pier	Full	DP	Eis	W	Full	U	4	M-E	Tut	W	Shel	½ Fl	8.7	31.1	Lav	36x4	36x7	Bim	Fir	4900	160	85
Northway B2	.....	Own	4 x6	25.6	H	C	GO	C	F	Strm	V	Pier	Full	DP	Wag	W	Full	U	4	Spic	Per	W	Shel	½ Fl	7.7	37.2	Ros	36x4	36x4†	Cla	.....	6000	Op	77
Northwestern WT	3300	Cont C4	4⅛x5¼	27.2	L	C	May	C	S	Strm	G	.....	Hart	C	Bos	.....	Covt	A	3	Bld	Shel	W	Shel	Flot	8.66	31.6	Ros	34x4	36x7	Wes	.....	4900	164	80
Oshkosh AA4	3850	H-Sp2700	3½x5	19.6	L	T	Own	C	FS	Zen	V	Dup	B-Li	DP	NE	NE	B-Li	U	4	Pet	Tut	B	Own	Flot	8.2	33	Ros	36x6*	36x6*	Bim	Fir	4200	165	60
Oshkosh A4	3750	H-Sp2700	3½x5	19.6	L	T	Own	C	FS	Zen	V	Dup	B-Li	DP	NE	NE	B-Li	U	4	Pet	Tut	B	Own	Flot	8.2	33	Ros	36x6*	36x6*	Bim	Fir	4200	130	60
*Packard EC	3700	Own	4¼x5½	28.1	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	7.25	33.3	Own	36x4	36x7	.....	.....	5050	144	48.2
Parker F20	3500	Wis TAU	4 x6	25.6	L	C	Own	PT	F	Strm	G	Mon	B-Li	DD	Bos	W	Full	A	4	Bld	Tut	W	Own	Flot	7.75	37.2	Ros	36x6*	40x8*	Bim	.....	5400	150	71
Patriot Lincoln	2450	Hink HAA	4 x5¼	25.6	L	C	Own	C	F	Strm	V	.....	Co	DP	Spl	.....	Full	A	4	Ther	Coop	W	Own	½ Fl	7.2	34.8	Ros	34x3½	34x5	Bim	Gdy	3900	140	75
*Pierce Arrow X5	3750	Own	4 x5½	25.6	T	C	.....	Fin	F	Strm	F	Own	.....	DD	Del	Opt	.....	A	4	.....	.....	W	.....	.....	8.33	43.3	.....	36x4	36x4†	Day	.....	6400	150	75
Rainier R18	2950	Cont C2	4½x5¼	27.2	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	.....	B-Li	U	3	Hart	Per	W	Shel	.....	8.7	28.83	Ros	34x4	34x6	.....	Fir	3850	147	80
*Reliance 20B	3200	Buda HTU	4¼x5½	28.9	L	C	Bus	PT	F	Strm	G	Pier	Full	DD	Eis	.....	Cott	A	4	Pet	Shel	P	Badg	D	7.5	39	Ros	36x4	36x4†	Bim	Gdy	5500	156	90

‡Chasis only

Trade Name and Model	Chassis Price	ENGINE DETAILS: 1 Make and Model Number (4 Cylinder unless otherwise noted)	Bore and Stroke	N. A. C. C. Horsepower	2 Valve Arrange't	3 How Cooled	4 Radiator (Make)	5 Radiator (Type)	6 Lubrication	7 Carburetor	8 Fuel Feed	9 Governor (Make)	10 Clutch (Make)	11 Clutch (Type)	12 Ignition System	13 Engine Starter	GEARSET: 14 Make	15 Location	Speeds	16 Universal (Make)	17 Springs (Make)	REAR AXLE: 18 Final Drive	19 Make	20 Type	Total Gear Reduction in High	Total Gear Reduction in Low	21 Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual: Front	Rear	22 Wheels (Make)	23 Rim Equipment	Chassis Weight	Wheelbase	Pr. Cent of Weight on Rear Wheels
2 Ton—Con'd																																		
Rowe CDW2	3300	Wis EAU	4 x5	25.6	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos		B-Li	U	4	Spic	Shel	W	Shel	½Fl	7.7	31	Ros	34x4	36x3½†	Hoo		4500	142	76.6
Royal		Wis	4 x5	25.6		C		H		Strm		Mon	B.B.	D	Bos	Op	Own			Own	Mer	W	Timk	D			Ros	36x4½	36x6					
Sandow I	2675	Cont N¾	3¾x5	22.5	L	G	Own	Fin	FS	Strm	G			DD	Eis		Full	U	3	Spic	GC	I	Torb	D	10	30	Ros	36x4	36x6	Stn		3800	150	70
Schacht	3550	Buda HU	4¼x5½	28.9	L	G	Own	PT	F	Sheb	G	Dup	Own	C	Bos		Own	A	3	M&E	Nat	W	Own	Flot			Own	36x4	36x7	StM		5500	156	70
Southern 20	2890	Buda HTU	4¼x5½	28.9	L	T	Own	PT	S	Zen		Pier	Full	DD	Bos		Full	U	4		Shel	W	Shel				Ros	36x4	36x7				150	70
Sterling 2	3500	Ster FU	4x5¾	25.6	L	C	Own	C	F	Rayf	V	Wau	B-Li	DD	Eis		B-Li	U	4	Spic	Mat	W	Timk	Flot	7.7	31	Ros	36x4	36x6	Pru		5000	142	91
Stewart 7	2800	Cont C2	4⅛x5¼	27.2		G	Bus	Fin	FS	Zen	G	Pier	Full	DP	Eis		Full	U	3	Hart	Det	I	Cl	D	9	27	Ros	34x4	34x7†	Cla	Fir	4460	156	72
Stoughton D	2800	Her CU3	4 x5⅛	25.6	L	C	Own	Fin	F	Strm	G	Dup	B-Li	DD	Eis		B-Li	U	4	Ther	Shel	W	Shel	½Fl	8.66	35	Lav	36x4	36x7	Bim	Gdy	4600	140	70
Sullivan E	3350	Buda HTU	4¼x5½	28.9	L	A		ZZT	F	Strm	V		B-Li	DD	Bos		B-Li	U	3	Spic	Shel	W	Timk		7.75	26	Ros	36x4	36x7	Way		4500	150	71
Sullivan EL	3375	Buda HTU	4¼x5½	28.9	L	A		ZZT	F	Strm	V		B-Li	DD	Bos		B-Li	U	3	Spic	Shel	W	Timk		7.75	26	Ros	36x4	36x7			4500	168	71
Superior E	2750	Cont C2	4⅛x5¼	27.2	L	A	Idl	C	F	Strm	V	Pier	Full	DD	Eis		Full	U	3	Arv	Tut	I	Torb	C	8	23.2	Ros	36x4	36x6	Sch	Fir	3600	144	75
Traffic 4000C	1595	Cont N4	3¾x5	22.5	L	T	Own	C	FS	Cart	G		Covt	DP	Bos		Covt	U	3	Ther	Det	I	Russ		7	25.62	Own	34x3½	34x5	Opt	Fir	3175	132	85
*Traylor C	3000	Buda ITU	4 x5½	25.6	L	G	GO	Fin	F	Zen	G	Pier	Covt	DD	Spl		Covt		3	Hart	Mer	W	Shel	½Fl	7.75		Ros	36x4	36x7	Sch		4900	138	78
Triangle C	2700	Wau BUX	3¾x5¼	22.5	L	C	Per	ZZT	FS	Strm	G	Wau	Full	DD	Eis		Full	U	3	UP	Det	I	Cl		9.1	27	Gem	36x4	36x6	Roy	Fir	4200	147	60
*Triumph HB-2	3100	Buda CTU	3¾x5¼	22.5	L	C	Chic	Fin	F	King	V	Pier	B.B.	D	Spl		Cott	U	4	UP	Tut	W	Wis		7.75	40.3	Lav	36x4	36x7	Stn	Stn	4900	144	70
Twin City 2		Buda ITU	4x5½	25.6	L	C	Mod	H	F	Sheb	V	Sim	Full	D	Eis		Full	U	3	Arv	Math	I	Cl		8	32	Ros	36x6*	40x8*	Bim	Fir	4800	150	80
*Ultimate AJ	3250	Buda HTU	4¼x5½	28.6	L	C	Own	Fin	F	Strm	G	Pier	B-Li	DD	Spl	W	B-Li	U	4	Spic	Shel	W	Shel		6.5		Ros	35x5*	38x7*	Jon	Fir	4590	156	
Vim 22	3150	Her CU2	3¾x5⅛	22.5	L	G	McC	PT	F	Zen	G	Dup	B-Li	D	Spl		B-Li	U	4	Spic	Shel	W	Shel		7.7		Gem	36x4	36x6	Smi		4700	142	
Wells C1	2800	Wei	4⅛x5¼	27.2	L	G			FS	Strm		Mon		D	Ber	Dy	Cott	U	4	Acm		I		D	7	40	Lav	36x4	36x8	Smi	Stn	4400	168	82
White 20	3450	Own	3¾x5⅛	22.5	L	C		C	FS	Own	G		Own	D				A	4	Own		R	Own	½Fl			Own	36x4	36x7		Fir	4150	157	
Wichita M	2800	Wau BX	3¾x5¼	22.5	L	G	Per	C	F	Strm	G	Wau	Own	C				A	4	Own	Det	W	Shel	½Fl	8.6	45.03	Ros	36x3½	36x6	Bim	Fir	4400	144	80
Winther 49	3250	Wis EAU	4 x5	25.6	L	G	Brm	PT	F	Mas	V		B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	9	39	Ros	34x4	34x4†	Own		5300	150	80
*Witt Will P	3250	Cont C4	4⅛x5¼	27.2	H	G	Mod	C	FS	Zen	G	Pier	B-Li	DD	Eis		B-Li	U	3	Spic	Del	W	Tim		7.75		Ros	36x3½	36x7	Arc		5000	144	70
2½ Ton																																		
*Ace 2½		Buda HU	4¼x5½	28.9	L	C	Mod	ZZT	F	Sheb	G	Pier	Full	DP	Eis	W	Full	A	4	UM	Math	W	Timk	Flot	8.50	34	Ros	36x4	36.7	Day	Fir	5630	156	80
Aetna 125	3375	Wis UAU	4¼x6	28.9	L	G	GO	PT	F	Zen	G	Pier	B.B.	P	Bos		Cott	A	4	Spic	Shel	W	Shel	½Fl	7.75	31	Ros	36x4	36x4†			4625	160	70
*American	3575	Wis	4 x6	25.6	L	G	GO	Fin	F	Strm	G	Own	Det	D	Eis		Cott	U	4	Acm	SP	W	Thom	Flot	8.33		Ros	36x4	34x4†			5000	160	
*Apex E	2695	Buda HU	4¼x5½	28.9	L	C	GO	C	F	Strm	V	Dup	Full	D	Eis	Op	Full	U	3	UP	Det	I	Torb	D	9	27	Lav	36x4	36x6	Roy	Fir	4500	150	70
Armleder HW		Buda HTU	4¼x5½	28.9	L	P	Lng	Fin	F	Zen	G		Full	DD	Bos	W	Full	U	4	Spic	Math	W	Timk	Flot	9.25	44	Ros	36x4	36x7	StM		4650	166	80
Atco A		Bud HU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	G	Pier	Full	D	Eis	W	Full	A	4	Hart	Shel	W	Wis		8.7	41.6	Ros	36x4	36x7	Smi		4900	150	
*Atterbury 7CX LWB	3475	Cont C4	4⅛x5¼	27.2	L	G	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber		B-Li	U	4	Spic	SP	W	Timk	Flot	9.25	37.0	Gem	36x4	36x4†	Arc	Fir	5520	171	74.5
*Atterbury 7CX STD	3375	Cont C4	4⅛x5¼	27.2	L	G	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber		B-Li	U	4	Spic	SP	W	Timk	Flot	9.25	37.0	Gem	36x4	36x4†	Arc	Fir	5360	153	74.5
*Available 2½	3475	Her CU3	4 x5⅛	25.6	L	G	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos		B-Li	A	4	Spic	Tut	W	Timk	Flot	7.75	40.3	Ros	36x4	36x8	Sch		4750	152	75
Bell O	2750	Buda HU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	V	Dup	B.B.	DP	Eis		Det	U	3	UP	Det	Opt	Opt	Opt	8	38.4	Gem	34x5	34x7	Bim	Fir	4200	146	65
Bessemer J2		Cont C4	4⅛x5¼	27.2	L	C		C	FS	Strm	G	Pier	B.B.	DP	Bos		B-Li	A	4	Arv	Per	I	Torb	D	8	32	Ros	36x4	36x4†	Sch	Fir	4600	158	67
Betz D2	2985	Buda HTU	4¼x5½	28.9	L	C	Chic	C	F	Strm	G	Pier	B-Li	D	Bos		B-Li	U	4	UM	Tut	W	Timk	Flot			Ros	36x4	36x8	Stn		4750	150	75
Bridgeport 2½B	2850	Buda HTU	4¼x5½	28.9	L	G	Own	Fin	FS	Strm		Pier	B.B.	D	Eis		Cott	U	4	Hart	Per	W	Timk		8.25		Ros	36x4	36x7	Arc		5500	156	70
Brinton F	3400	Cont C4	4⅛x5¼	27.2	L	C	Chic	PT	F	Strm	G	Pier	B-Li	D	Bos		B-Li	U	3	Spic	Tut	W	Timk	Flot		33.6	Ros	36x4	36x6	Smi		4600	150	
Brockway K5	3200	Cont K4	4⅛x5¼	27.2	L	C	Bus	PT	F	Strm	V	Phar	B-Li	DD	Eis		B-Li	A	4	Spic	Mer	W	Timk		7.75	41.5	Gem	36x4	36x7	Hoo		4700	152	80
Capitol H 2½	3700	Wis UAU	4¼x6	28.9	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos		Cott	U	4	Spic	Sp	W	Wis	½Fl	8.66	45	Ros	36x4	36x8			5200	156	85
Capitol K2½	4250	Wis UAU	4¼x6	28.9	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos	W	Cott	U	4	Spic	SP	W	Wis	½Fl	7.25	37.7	Ros	36x6*	42x9*		Fir	5100	156	85
*Chicago C2½		Her CU3	4 x5⅛	25.6	L	C		PT	F	Strm	G	Sim	B-Li	D	Bos		B-Li	U	4	Pet	Math	W	Timk	Flot	8.5	34	Gem	36x4	36x7	Opt	Stn	4500	156	
Clydesdale 65EC	3775	Own MU3	4½x5½	32.4	L	G	Own	PT	F	Zen	V	Own	B-Li	DD	Bos		B-Li	A	4	Spic	Stan	W	Timk	Flot	8.5	41.1	Ross	36x4	36x7	Smi		5540	163	73
Collier 22		Cont C4	4⅛x5¼	27.2	T	P	Lng	PT	FS	Zen	V	Pier	Full	DP	Eis		Full	U	4	UP	Math	W	Timk		8.5	40.8	Ros	36x4	36x4†	Bim	Fir	5550	165	70
*Columbia G	2850	Hink HAA	4 x5¼	25.6	L	C	Lng	Fin	F	Strm	V	Hink	M-E	DP	Spl	W	Cott	A	4	Spic	Per	I	Russ		9.5	48.8	Own	36x4	36x7	Det	Fir	4400	148	40
Concord B	3600	Buda HTU	4¼x5½	28.9	L	C	Bus	Pt	S	Zen	G	Mon	B-Li	DP	Eis		B-Li	U	4	Spic	Per	W	Timk	Flot	9.25	37	Ros	36x4	36x8	Arc	Fir	5000	150	70
Corbitt B	3650	Cont C4	4⅛x5¼	27.2	L	C	Lng	Fin	FS	Strm	V	Sim	B-Li	DD	Eis		B-Li	U	4	Hart	Shel	W	Shel	½Fl	8.7	35	Ros	36x4	36x7	Bim	Fir	5325	152	75
Dart M		Buda HU	4¼x5½	28.9	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis		Full	U	4	Spic	Per	W	Own		8.5	40.8	Ros	36x4	36x7	Pru		4800	150	80
Day Elder C	2950	Buda HTU	4¼x5½	28.9	L	C	Bus	Fin	F	Zen	G	Mon	Covt	DD	Eis		Covt	U	4	Hart	IC	W	Shel	½Fl	8.75	41.56	Gem	36x4	36x7	Jon	Fir	5000	150	70
Dependable E 2½	2950	Buda HTU	4¼x5½	28.9	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	A	4	Acm	Per	W	Wis	½Fl	8.6	40	Ros	36x4	36x7	Bim	Fir	5600	157	70
Doane 2½	4100	Wau RU	4¼x5¾	28.9		C	Own	PT	S	Mas	G	Wau	B-Li	DD	Bos		B-Li	U	3	Own	Own	C	Own	D	7.7	30.8	Lav	36x5	36x7	Wes		5000	147	79
Erie 2½		Buda HTU	4¼x5½	28.9	L	C	McC		FS	Strm	G	Pier	Full	D	Bos		Full	A	4	Spic	Per	W	Shel				Ros	36x6*	36x8*	Way	Fir	5760	150	80
Facto	2895	Buda ETU	4¼x5½	28.9	L	C	Bus	PT		Zen	V	Pier	Full	D	Spl		Full	A	4	Spic	SP	W	Timk		7.75	37.14	Ros	36x4	36x8	Smi	Fir	5600	156	
Fageol 3400	3900	Wau CU	4¼x5¾	28.9	L	C	Mod	C	F	Zen	V	Wau	Det	DD	Spl		Own	A	5	Spic	Math	W	Timk	Flot	5.6	59.5	Ros	36x4	36x7	Stn		4600	144	80
*Gary J	3150	Buda HTU	4¼x5½	28.9	L	C	Chic	Fin	F	Mas	G	McC	Full	DD	Eis		Full	U	4	Hart	Det	W	Timk	Flot	8.5	41	Ros	36x4	36x7	Pru	Gdy	4850	148	70
*Gersix K	3500	Buda HTU	4¼x5½	28.9	L	C	Idl	C	F	Strm	V	Mon	B.B.		Bos		Cott	U	3	Bld	Tut	W	Own		9.6	39	Ros	36x4	36x8	Jon		5200	150	75
Giant 16	3350	Cont C4	4⅛x5¼	27.2	L	P	Own		FS	Sheb	G	Mon	B-Li	DD	Eis		B-Li	U	3	Spic	Math	W	Timk		8.8	29.09	Ros	36x4	36x7	Way		4500	168	90
Giant 16	3250	Cont C4	4⅛x5¼	27.2	L	P	Own		FS	Sheb	G	Mon	B-Li	DD	Eis		B-Li	U	3	Spic	Math	W	Timk		8.8	29.9	Ros	36x4	36x7	Way		4500	144	90
Gramm-Bernstein 25	3575	Hink	4¼x5½	28.9	L	C	Own	Fin	F	Strm	V	Hink	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Eat	½Fl	7.7	36.7	Ros	36x4	36x4†	Smi	Fir	6800	150	91.3
*Gramm Bernstein 30	4525	Hink	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Hink	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Eat	½Fl	9.5	45	Ros	36x6*	42x9*	Smi	Fir	6800	150	91.3
Hahn EE		Cont E4	4½	32.4	L	C	Own	Fin	F	Strm	G	Pier		DD	Bos		B-Li		3	Spic		W	Timk		7.7		Ros	36x4	36x8			4800	145	65
Hall 2½ Worm	3275	Cont C4	4⅛x5¼	27.2	L	P	Own	H	FS	Zen	G	Dup	B-Li	DP	Bos		B-Li	U	3	Opt	Det	W	Timk		7.7		Gem	36x4	36x4	Smi		4825	Op	
Harvey WFA	3300	Buda HU	4¼x5½	28.9	L	G		ZZT	FS	Strm	G	Mon	B.B.	DP	Eis		B-Li	A	4	Spic	Shel	W	Shel		7.7	31	Ros	36x4	36x7	Sch		5300	150	80
Hendrickson I	3150	Buda HU	4¼x5½	28.9	L	C			F	Strm	G	McC		D	Spl		Full	A	4	Ther	Tut	W	Timk		7.7	37.2	Ros	36x4	36x7	Stn			Op	80
Hewitt Ludlow Worm		Buda HU	4¼x5½	28.9			Mod	Fin		Strm	V		B-Li	DP	Bos		B-Li		4	Spic			Shel	½Fl			Ros	36x4	36x7			5500	150	
H. R. L., H	3650	Hink HAA	4 x5¼	25.6	L	C	Fed	Fin	F	Zen	V	Hink	B-Li	DP	Bos	GD	B-Li	U	4	Spic	Shel	W	Shel		8.75	30.	Ros	36x4	36x4†	Sch		5310	154	
Hurlburt 2½	3750	Buda HU	4¼x5½	28.9	L	G	Own		F	Flch	G	Dup	B-Li	D	Eis		B-Li	U	3	Spic	Per	W	Own				Ros	36x4	36x4	Way		5600	170	85
Independent F (Iowa)	2940	Cont C4	4⅛x5¼	27.2	L	C	GC	PT	FS	Strm	V		Full	DD	Bos		Full	U	4	Bld	GC	I	Russ	D	10		Lav	36x4	36x7	StM	Fir	4950	154	75
Independent H, (Ohio)	3285	Cont K4	4⅛x5¼	27.2	L	G	Lng	PT	F	Strm	G		Full	DP	Eis		Full	U	3	Spic	Math	W	Wis		9.6	39	Ros	36x4	36x8†			4600	148	85
Indiana 25	3150	Own 38	4⅛x5½	27.2	L	C	McC	Fin	F	Strm	G	Pier	B.B.	DD	Eis		B-Li	A	4	Spic	Shel	W	Shel	½Fl	7.75	39.5	Woh	36x4	36x8	Day		5850	156	73
Jumbo 25	3090	Buda HU	4¼x5½	28.9	L	C	Own	Fin	F	Zen	V	Dup	Full	D	NE		Full	U	4	Arv	Per	I	Cl	D	9	43.2	Jac	36x4	36x7	Day		5190	152	75
Kalamazoo H	3700	Wis TAU	4x6	25.6	L	G	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	Acm	Shel	W	Shel	½Fl	8.75	42.8	Ros	36x4	36x8	Smi		6200	160	80
Kankakee 2½	3175	Cont 6 9N	3½x5¼	29.4	L	C	Spli	H	FS	Zen	V		W-Gr	DD	Del	DL	W-Gr	U	3	Acm	Tem	I	Russ	D	7.4	22.2	Ros	36x6	40x8*	Bim	Gdy	4200	170	70

Karavan	....	Buda X TU	4¼x6	28.9	L	C	Fed	ZZT	F	Zen	G	Dup	B-Li	DD	Ber	....	B-Li	A	4	Spic	Shel	W	Shel	....	7.75	37.51	Ros	36x4	36x8	Smi	....	5700	148	80
Kelly Springfield K35	3250	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	Own	Per	C	Own	D	10.6	35.11	Gem	36x4	36x4†	StM	....	5000	144	89
Kelly Springfield K36	3250	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	Spic	Per	W	Shel	½Fl	10.3	34.02	Gem	36x4	36x4†	StM	....	5145	144	89
*Kimball C	3975	Wis UAU	4¼x6	28.9	L	C	Flex	PT	F	Mas	V	Dup	B-Li	DP	Ber	W	B-Li	A	4	Spic	US	W	Shel	½Fl	7.7	37.31	Ros	36x4	36x7	Smi	Fir	5100	Op	66
Kissel Freighter	3475	Own 50000*	4¼x5½	28.9	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	....	W-Gr	A	4	Spic	Mat	W	Timk	Flot	8.5	42.5	Jac	36x4	36x7	Pru	....	5200	168	74
Kleiber B	4200	Cont E4	4½x5½	32.4	L	C	RT	PT	...	Strm	G	Sim	....	WD	Bos	....	B-Li	A	4	Spic	....	W	Timk	Flot	7.75	37.51	Ros	36x5	36x8	WL	....	6000	160	75
Koehler M	3365	Her CU3	4 x5⅛	25.6	L	C	Own	....	F	Zen	G	Sim	B-Li	D	Eis	....	B-Li	A	4	Spic	Math	W	Timk	....	9.25	37	Jac	36x4	36x7	Way	....	5050	162	75
Larrabee-Deyo K	3400	Cont C4	4⅛x5¼	27.2	L	C	Bus	Fin	S	Sheb	G	Sim	B-Li	DD	Bos	....	B-Li	A	4	Opt	Mer	W	Shel	½Fl	8.7	35	Ros	36x4	36x7	Hoo	....	5700	176	....
*L.M.C 2-20	2540	Cont C2	4⅛x5¼	27.2	L	C	....	Fin	S	Strm	V	Pier	B.B.	....	Bos	....	Det	A	4	Ther	Math	I	Russ	D	8.8	38.72	Lav	36x4	36x4†	Bim	....	4500	164	80
*Maccar H	3650	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	....	B-Li	U	3	Spic	Mer	W	Timk	Flot	7.75	31.08	Ros	36x4	36.4†	Day	Fir	5250	162	70
Master D	3540	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	....	Full	U	5	Spic	Det	R	Walk	Flot	8	32	Ros	34x4	36x7	Wal	....	4500	144	76
Master DL	3640	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	....	Full	U	5	Spic	Det	R	Walk	Flot	8	32	Ros	34x4	36x7	Wal	....	4600	170	80
Master W	3290	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	....	Full	U	5	Spic	Det	W	Timk	Flot	8.5	34	Ros	34x4	36x7	Pru	....	4500	144	76
Master WL	3390	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	....	Full	U	5	Spic	Det	W	Timk	Flot	8.5	34	Ros	34x4	36x7	Pru	....	4600	170	80
*Moreland 20C	3900	Cont L4	4½x5½	32.4	L	C	Own	C	FS	Mas	G	....	Own	DD	Spl	....	Own	A	5	Ther	US	W	Timk	....	6.8	32.9	Ros	36x4	36x8	Smi	....	5380	158	....
*Mutual 2 BP	4150	Wis TAU	4 x6	25.6	L	G	GO	PT	F	Strm	G	Dup	HS	D	Bos	W	Cott	A	4	M-E	Math	W	Shel	Flot	7.7	40.2	Ros	38x7*	42x9*	Day	Fir	6000	152	71
Nelson & LeMoon F2½	....	Cont C4	4⅛x5¼	27.2	L	C	Chic	Fin	S	Strm	G	Pier	B-Li	DD	Bos	W	B-Li	U	3	Own	Tut	W	Timk	....	7.7	......	Lav	36x4	36x7	Pru	Gdy	4100	Op	80
*Netco H	‡3500	Cont E4	4½x5½	32.4	L	C	RT	PT	S	Zen	G	....	B-Li	DP	Eis	....	B-Li	A	4	Hart	Per	W	Timk	Flot	7.75	39	Ros	36x4	36x8	Arc	Gdy	5750	168	75
Noble D50	....	Buda HTU	4¼x5½	28.9	L	C	Chic	Fin	F	Strm	G	Pier	Full	DP	Eis	W	Full	A	4	M-E	Tut	W	Shel	½Fl	8.7	42	Lav	36x4	36x8	Bim	Fir	5700	176	85
*Ogden E2½	2995	Cont C 2	4⅛x5¼	27.2	L	C	Chic	PT	FS	Rayf	G	Pier	B-Li	DP	Bos	....	B-Li	A	4	M-E	Tut	W	Shel	....	8.7	......	Gem	36x4	36x8	Stn	....	5600	160	70
O. K. 2½ T	3450	Buda HTU	4¼x5½	28.9	L	G	RT	PT	FS	Zen	V	Pier	Full	DD	Eis	....	Full	U	4	Hart	Cham	W	Wis	½Fl	8.66	41.5	Ros	36x4	36x7	Bim	....	....	150	....
*Old Reliable B	3600	Wis UAU	4¼x6	28.9		C	Chic	PT	FS	Strm	V	Mon	Full	DD	Bos	....	Full	A	4	Spic	Shel	W	Shel	½Fl	8.25	37.2	Ros	34x4	36x4†	StM	....	5850	160	70
Oneida C9	3390	Oneida	4 x5¼	25.6	L	C	Own	C	F	Strm	V	Own	Own	DP	..	....	Own	A	4	Own	Math	W	Own	½Fl	8.6	41.6	....	36x4	36x7	....	....	5495	160	....
*Orleans B	....	Her CU3	4 x5⅛	25.6	L	C	Chic	PT	F	Mas	G	....	Det	DD	Eis	....	Cott	A	4	Bld	Mar	W	Wis	½Fl	8	......	Ros	36x4	36x7	Smi	Fir	....	160	80
*Paige 54-20	3400	Hin HA500	4¼x5½	28.9	L	C	Own	Fin	F	Strm	V	Sim	B-Li	DD	Bos	....	B-Li	A	4	Spic	Per	W	Shel	½Fl	8.7	42.35	Ros	34x4	34x8	Day	Fir	5200	150	85
Pittsburgh B	....	Cont C4	4⅛x5¼	27.2	L	C	GC	Fin	F	Strm	V	Mon	B-Li	DP	Bos	....	B-Li	U	4	Spic	IC	W	Shel	....	8.7	35.8	Ros	36x5	36x7	Smi	....	5500	160	67.5
Rainier R-20	3650	Cont K-4	4⅛x5¼	27.2	L	G	EM	Fin	F	Zen	V	Pier	B-Li	DP	....	....	B-Li	A	4	Spi	....	W	Timk	Flot	....	....	Ros	34x4	34x7	Way	....	5000	Op	....
*Republic 19	2795	Cont C2	4⅛x5¼	27.2	L	C	Own	C	FS	Strm	G	Phar	Full	DD	Bos	....	Full	U	4	Spic	Math	I	Torb	D	8	38.4	Jac	36x4	36x7	Nor	Fir	4175	144	....
Reynolds 5A	....	Hin HAA500	4¼x5½	28.9	L	C	Lng	Fin	F	Strm	G	Hink	Covt	DD	Bos	W	Covt	A	4	Sned	Per	W	Shel	....	7.7	36.8	Lav	36x4	36x8	Smi	....	....	154	75
Royal	....	Wis UAU	4½x6	29.8	L	C	....	H	...	Strm	...	Mon	B.B.	D	Bos	Op	Own	...	4	Own	Mer	W	Timk	....	....	....	Ros	36x4½	36x6	....	....	....	132	....
*Sandow J	3275	Cont C4	4⅛x5¼	27.2	L	G	....	Fin	FS	Strm	G	Mon	B.B.	DD	Bos	....	B-Li	U	4	Spic	GC	W	Timk	....	9.2	31	Ros	36x4	36x7	Stn	....	4500	165	70
Sanford W25	3350	Cont C4	4⅛x5¼	27.2	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	....	B-Li	A	4	Spic	Per	W	Shel	½Fl	8.7	34.8	Ros	36x4	36x4†	Hoo	Fir	5330	156	75
Schacht	3850	Buda HU	4¼x5½	28.9	L	G	Own	PT	F	Sheb	G	Dup	Own	C	Bos	....	Own	A	3	M-E	Nat	W	Own	Flot	....	....	Own	36x4	36x4†	StM	....	6000	156	70
Schwartz CWS	3200	Buda HTU	4¼x5½	28.9	L	C	Fed	H	F	Strm	G	Mon	M-E	DP	Bos	....	Dun	U	3	M-E	Row	W	Shel	....	8.75	29.36	Ros	36x4	36x8	Sch	Fir	5400	132	....
Schwartz CW	3200	Buda HTU	4¼x5½	28.9	L	C	Fed	H	F	Strm	G	Mon	M-E	DP	Bos	....	Dun	U	3	M-E	Row	W	Shel	....	8.75	29.36	Ros	36x4	36x8	Sch	Fir	5400	150	....
Schwartz CWL	3300	Buda HTU	4¼x5½	28.9	L	C	Fed	H	F	Strm	G	Mon	M-E	DP	Bos	....	Dun	U	3	M-E	Row	W	Shel	....	8.75	29.36	Ros	36x4	36x8	Sch	Fir	5400	168	....
Selden 2½A	3425	Cont C4	4⅛x5¼	27.2	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	....	B-Li	A	4	Spic	Per	W	Timk	Flot	7.75	37.5	Gem	36x4	36x7	Stn	....	5400	145	52
Service 51	3475	Buda HU	4¼x5½	28.9	L	C	....	Fin	F	Strm	V	....	B.B.	DP	Eis	....	....	A	4	Spic	....	W	Timk	....	7.75	37.5	Ros	36x4	36x7	Bim	....	5180	160	70
*Signal J	3275	Cont C4	4⅛x5¼	27.2	L	C	McC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	....	B-Li	A	4	Spic	Det	W	Timk	Flot	9.25	37	Ros	34x4	36x8	Hay	....	5240	150	73
Standard 76	....	Cont C2	4⅛x5¼	27.2	L	C	Lng	Fin	S	Strm	G	Mon	B-Li	DD	Eis	....	B-Li	A	4	Spic	Per	W	Timk	Flot	8.5	34	Ros	36x4	36x7	....	....	4430	140	71
Sterling 2½	3650	Ster CU	4⅜x5¾	30.6	L	C	Own	C	F	Rayf	V	Wau	B-Li	DD	Eis	....	B-Li	U	4	Spic	Math	W	Timk	Flot	7.7	37.26	Ros	36x4	36x4†	Pru	....	5500	156	88
Stewart 7X	2950	Buda HTU	4¼x5½	29.	...	G	Bus	PT	FF	Zen	G	Pier	Full	DP	Eis	....	Full	U	4	Hart	Det	I	Cl	D	9.	43.2	Ros	34x4	34x7	CL	Fir	....	156	72
Stoughton F	3600	Her MU2	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	Dup	B-Li	DD	Eis	....	B-Li	U	4	Ther	Shel	W	Shel	½Fl	8.75	35	Ros	36x5	36x5†	Bim	Gdy	5900	158	70
Success B	2850	Cont C4	4⅛x5¼	27.2	L	G	....	H	F	Zen	...	Mon	Full	D	Eis	....	Full	...	4	UP	Shel	W	Shel	....	8.7	..	Lav	34x4	36x7	....	....	4700	144	80
*Super Truck 50	3300	Wis	4 x6	25.6	L	C	Chic	Fin	F	Zen	G	Sim	Full	....	Bos	....	Full	U	4	Ther	Shel	W	Shel	½Fl	8.75	42	Lav	36x4	36x8	Bim	....	5200	156	....
Tiffin MW	3580	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Sheb	G	Pier	Full	DD	Bos	W	Full	U	4	Pet	Kal	W	Shel	....	8.7	41.7	Ros	36x4	36x3½†	Smi	....	4890	148	80
Titan. 2½	3400	Buda HTU	4¼x5½	28.9	L	C	BW	ZZT	F	Strm	G	Sim	B.B.	DP	Eis	....	Cott	U	4	Pet	Shel	I	Cl	D	8	42	Woh	34x4	36x4†	Bim	....	5300	156	70
Tower H2½	3475	Cont C4	4⅛x5¼	27.2	L	C	Own	PT	S	Strm	G	Pier	Full	DP	Eis	....	Full	U	3	Spic	Det	W	Timk	Flot	9.2	37	Ros	36x4	36x7	Pru	Gdy	5230	146	70
Transport 50	2785	Buda	4¼x5½	28.9	L	C	Mod	C	F	Strm	G	Dup	Full	DD	Eis	....	Full	U	4	Hart	Det	I	Cl	D	8.15	39	Jac	36x4	36x7	....	Fir	4250	150	70
Triangle B	2950	Wau FU	4x 5¾	25.6	L	C	Per	ZZT	F	Strm	G	Wau	Full	DD	Eis	....	Full	U	4	UP	Det	I	Cl	....	9.1	42	Gem	36x4	36x7	Roy	Fir	4900	150	60
Ultimate B	3750	Buda HTU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	Pier	B-Li	DD	Eis	W	B-Li	U	4	Spic	Shel	W	Shel	....	7.75	......	Ros	36x4	36x8	Jon	Fir	5340	166	72
Union F	3150	Wis TAU	4 x6	25.6	L	G	GO	Fin	F	Sheb	G	Dup	Full	DD	Eis	LN	Full	U	4	UP	Math	I	Russ	....	7.8	37.4	Ros	36x5	36x8	Pru	....	5500	155	70
United B2½	3150	Buda HTU	4¼x5½	28.9	L	C	Mod	....	F	Strm	G	Sim	Full	DD	Eis	Op	Full	A	4	Bld	Bea	I	Cl	D	8.15	39.12	Jac	36x4	36x7	Pru	....	4940	151	70
Walker-Johnson B	....	Buda HTU	4¼x5½	28.9	L	G	Bus	PT	F	Zen	G	Pier	Opt	D	Eis	....	Opt	A	4	Spic	Per	W	Timk	Flot	....	....	Ros	36x4	36x8	Arc	....	5000	150	70
Ward LaFrance 2B	3590	....	4⅜x5¾	30.6	L	C	Own	Fin	F	Zen	G	....	B-Li	DP	Bos	....	B-Li	A	4	M-E	Mer	W	Timk	....	6.8	36.38	Ros	36x4	36x4†	Hoo	....	5400	158	85
White Hickory K	....	Cont C2	4⅛x5¼	27.2	L	C	Chi	Fin	FS	Strm	V	Sim	Full	DD	Eis	....	Full	U	4	M-E	Shel	W	Timk	....	8.5	40.8	Lav	36x4	36x7	Bim	Fir	4650	150	78
Wichita R	3000	Wau BX	3¾x5¼	22.5	L	G	Per	C	F	Strm	G	Wau	Own	C	....	....	....	A	4	Own	Det	W	Shel	½Fl	8.75	55.45	Ros	36x4	36x7	Smi	Fir	4500	144	80
Wilcox C	....	Own	4¼x5	28.9	L	G	....	PT	S	Strm	G	Dup	Own	C	Bos	....	Own	A	4	Own	Shel	W	Wis	½Fl	8.6	42.35	Own	36x4	36x3½†	....	....	5000	135	75
Wilson EA	3300	Own	4 x5⅛	25.6	H	G	....	PT	FS	Mar	G	Pier	B.B.	....	Eis	....	Own	A	4	Ther	Per	W	Timk	....	7.7	31	Ros	36x4	36x7	....	....	4625	152	80
Winther 450	3690	Wis-EAU	4 x5	25.6	L	G	Brm	PT	F	Strm	G	....	Full	DD	Eis	W	Full	U	3	Pet	Math	....	Cl	D	9	36	Lav	34x4	36x6	Cla	....	4300	150	60

3 Ton

Beck-Hawkeye D	3700	Cont G	4½x5½	32.4	L	G	....	H	F	Strm	G	Pier	Full	DD	Bos	....	Full	U	3	Bld	Hig	I	Cl	D	9	......	Lav	36x5	36x8†	Smi	Fir	6000	160	70
Bethehem H	3095	Own H	4 x5¼	25.6	L	T	Liv	C	F	Zen	G	Pier	Full	DD	Bos	GD	Full	U	4	UP	Math	I	Russ	Flot	9.4	45	Lav	36x4	36x8	Smi	....	5000	143	....
Denby 25	3600	Cont C2	4⅛x5¼	27.2	L	C	Lng	PT	FS	Strm	G	Mon	Full	DD	Eis	....	Full	U	4	UP	Det	I	Russ	D	9.4	45.3	Ros	36x4	36x7	Smi	Fir	4920	150	79
*Douglas I 3	3250	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	V	Pier	Full	DP	Eis	....	Full	U	4	Arv	Own	W	Wis	....	9.1	41	Ros	36x5	36x8	Own	Fir	4750	136	66⅔
Forschler BX	....	Cont C2	4⅛x5¼	27.2	L	C	EM	....	FS	Zen	...	Dup	Full	....	Bos	....	Full	...	4	Hart	Own	W	Shel	....	....	....	Ros	36x4	36x8	Smi	....	4725	137	....
F. W. D., B	....	Wis A	4¾x5½	36.1	T	C	McC	PT	F	Strm	G	Pier	M-E	DP	Eis	....	Cott	A	3	Bld	Tut	B	Own	Flot	8.9	35.6	Ros	36x6	36x6	Sch	....	6300	124	55
*Gersix L	4500	Buda YTU	4½x6	32.4	L	C	Idl	C	F	Strm	V	Mon	B.B.	....	Bos	....	Cott	A	4	Bld	Tut	W	Shel	....	10.2	53.3	Ros	36x5	40x12	Jon	....	7100	170	70
Jumbo 30	3590	Buda HU	4¼x5½	28.9	L	C	Own	Fin	F	Zen	V	Dup	Full	D	NE	....	Full	U	4	Arv	Per	I	Cl	D	9	43.2	Jac	36x6*	42x9*	Cla	....	5350	152	75
Kimball K	4400	Wis VAU	4½x6	32.4	L	C	Flex	PT	F	Mas	V	Dup	B-Li	DP	Ber	W	B-Li	A	4	Spic	US	W	Shel	½Fl	7.7	37.31	Ros	36x4	36x8	Smi	Fir	5500	Op	66
Luverne	2750	H-Sp 11000	3¼x5	16.9	...	G	....	....	...	Zen	V	....	B.B.	....	Bos	Dy	Det	U	..	....	....	....	Torb	....	....	....	Lav	36x6	38x7	....	Fir	....	140	....
*Packard ED	4450	Own	4½x5½	32.4	L	C	....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	....	W	Own	Flot	9.0	41.3	Own	36x5	36x5	....	....	7000	156	52.1
Patriot Washington	3450	Hink HA	4½x5½	32.4	L	G	Own	C	F	Strm	V	....	Covt	DP	Spl	....	Covt	A	4	Ther	Coop	W	Wis	½Fl	9.66	45.88	Ros	36x4	36x7	Bim	Gdy	5200	156	80
Riker B	4600	Own	4¼x6	28.9	T	C	....	Fin	FS	B&B	G	Own	....	C	Ber	W	....	A	4	Own	....	W	Own	....	10	42.5	Ros	36x5	36x5†	....	....	6900	150	75
Rowe GPW3	5250	H-Sp8 VA	3¼x5	33.8	L	C	Fed	H	F	Zen	V	....	B-Li	DP	AtK	W	B-Li	U	4	Spic	Shel	W	Shel	½Fl	7.7	31	Ros	38x7*	42x9*	Hos	....	5500	170	71.8
Rowe GSW3	4150	Wis TAU	4 x6	25.6	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	....	B-Li	U	4	Spic	Shel	W	Spel	½Fl	7.7	31	Ros	36x5	36x5†	Hos	....	4800	162	68.5
*Traylor D	3500	Buda HTU	4¼x5½	28.9	L	C	GO	Fin	F	Zen	...	Pier	Covt	DD	Spl	....	Covt	...	4	Hart	Mer	W	Shel	½Fl	7.7	......	Ros	36x4	36x8	Sch	....	5700	150	78
Ultimate BL	3850	Buda HTU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	Pier	B-Li	DD	Eis	W	B-Li	U	4	Spic	Shel	W	Shel	....	7.75	......	Ros	36x4	36x8	Jon	Fir	5590	178	72
U. S., R	....	Own	4 x5¼	25.6	...	C	Lng	Fin	F	Strm	V	Own	B-Li	DD	Eis	Op	B-Li	A	4	Opt	Shel	W	Shel	½Fl	8.7	41.5	Lav	36x4	36x4†	Sch	....	5500	156	85
Vim 23	3950	Her MU2	4¼x5½	28.9	L	C	McC	Fin	F	Zen	G	Dup	B-Li	D	Spl	....	B-Li	A	4	Spic	Shel	W	Shel	....	7.7	......	Gem	36x5	36x5†	Smi	....	6370	175	....
Wichita RX	3600	Beav JA	4¼x6	28.9	H	C	EM	C	F	Strm	G	Dup	....	C	Ber	....	....	A	4	Own	Det	W	Shel	½Fl	8.75	45.5	Ros	36x4	36x8	Smi	Fir	5900	160	80

3½ Ton

Acason L	....	Wau CU	4⅜x5¾	30.6	L	G	Can	C	FS	Sheb	V	Wau	Det	....	Eis	....	Cott	A	4	Bld	Det	W	Timk	....	8.75	48.5	Ros	36x5	36x5†	Smi	Opt	7000	180	....
*Acme C	4050	Cont L4	4½x5½	32.4	L	C	GO	Fin	F	Rayf	V	Dup	B.B.	DP	Eis	....	Cott	A	4	Bld	Det	W	Timk	Flot	10.3	53.73	Ros	36x5	40x10†	Bim	....	6650	168	56
Aetna 135	4375	Wis BAU	4½x6	32.4	L	G	GO	PT	F	Zen	G	Pier	B.B.	P	Bos	....	Cott	A	4	Spic	Shel	W	Shel	½Fl	8.75	42.33	Ros	36x5	36x5†	....	....	6800	172	75
All-Power C	5800	T-C	4½x6	32.4	H	...	....	PT	...	Zen	V	....	B.B.	....	NE	NE	Cott	U	3	A-B	....	W	Timk	....	9.25	92.5	Ros	36x6	36x10	....	....	....	150	....

‡Chassis Only

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight	Wheelbase	Pr. Cent of Weight on Rear Wheels
3½ Ton—Con'd		1			2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23			
*Apex F	3975	Buda YTU	4½x6	32.4	L	C	GO	C	F	Strm	V	.....	Full	D	Eis	AL	Full	A	4	Bld	Det	...	Torb	.....	10.5	.....	Woh	36x5	36x10	Roy	Fir	6940	160	....
Armleder KW	.....	Buda YTU	4½x6	32.4	L	P	Own	Fin	F	Zen	G	.....	Full	DD	Bos	.....	Full	U	4	Spic	Math	W	Timk	Flot	10.33	50	Ros	36x5	36x5†	StM	.....	6800	186	80
Atco C		Buda YTU	4½x6	32.4	L	C	Chic	PT	F	Strm	G	Pier	Full	D	Eis	.....	Full	A	4	Hart	GC	W	Wis	.....	10	48	Ros	36x5	40x10	Smi	.....	6300	168	....
*Atterbury 7D-LWB	4275	Cont E4	4½x5½	32.4	L	G	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	10.3	41.3	Gem	36x5	40x5†	Arc	Fir	7270	192	76
Atterbury 7D-Standard	4175	Cont E4	4½x5½	32.4	L	G	Own	Fin	S	Zen	G	Mon	B-Li	DD	Ber	.....	B-Li	U	4	Spic	SP	W	Timk	Flot	10.3	41.3	Gem	36x5	40x5†	Arc	Fir	6950	167	76
Autocar Y	4350	Own Y	4½x5½	28.9	L	C	Own	Fin	S	Strm	G	Dup	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	8.7	43.5	Ros	34x5	36x10	Hoo	.....	6600	120	65
Autocar B	4500	Own B	4½x5½	28.9	L	C	Own	Fin	S	Strm	G	Dup	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	8.7	43.5	Ros	34x5	36x10	Hoo	.....	6800	156	65
Available H3½	4475	Her MU3	4½x5½	32.4	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Tut	W	Timk	Flot	10.33	49.99	Ros	36x5	40x5†	Sch	.....	6500	176	75
Brockway R-4	4100	Cont L4	4½x5½	32.4	L	C	Bus	PT	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	.....	8.75	46.8	Gem	36x5	36x5†	Smi	.....	6800	164	70
Capitol M-3½	4425	Wis UAU	4¼x6	28.9	L	C	GO	Fin	F	Strm	G	Sim	Det	DD	Bos	.....	Cott	A	4	Spic	SP	W	Wis	½-Fl	9	46.8	Ros	36x5	36x10	Smi	.....	6400	168	85
*Chicago C3½	.....	Her MU3	4½x5½	32.4	L	C	.....	PT	F	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	A	4	Pet	Math	W	Timk	Flot	10.33	50	Gem	36x5	36x10	Opt	Sta	6900	168	....
Clydesdale 90C	4400	Own MU3	4½x5½	32.4	L	G	Own	PT	F	Zen	V	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	10.33	55.2	Ros	36x5	40x10	Smi	.....	6930	170	78
Corbitt A	4500	Cont E4	4½x5½	32.4	L	G	MeC	Fin	FS	Strm	V	Pier	B-Li	DD	Eis	.....	B-Li	U	4	Hart	Shel	W	Shel	½-Fl	11.75	47	Ros	36x5	36x10	Smi	.....	7370	178	75
Couple Gear HC	6100	Wis	5.1x5½	41.9	T	C	Idl	H	F	Strm	G	.....	.....	.....	Eis	.....	Own	...	...	Own	Tut	B	Own	.....	.....	.....	Own	36x4†	36x4†	Own	Own	9000	144	57
Dart W	.....	Buda YTU	4½x6	32.4	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis	.....	Full	A	4	Spic	Per	W	Own	.....	8.7	52.5	Ros	36x5	36x10	Pru	.....	6740	160	75
Day Elder F	3750	Cont E4	4½x5½	32.4	L	C	Bus	Fin	FS	Zen	G	Mon	B-Li	DD	Eis	.....	B-Li	U	4	Hart	IC	W	Shel	½-Fl	10.25	41	Gem	36x5	36x5†	Jon	Fir	5750	165	70
Dependable G	3550	Buda YTU	4½x6	32.4	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	A	4	Acm	Per	W	Wis	½-Fl	10	47.61	Ros	36x6	38x7	Bim	Fir	6000	160	75
*Diamond T-K	4675	Hin	4¼x5½	28.9	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	A	4	Spic	Math	W	Timk	Flot	8.8	44.36	Gem	36x5	36x5†	.....	.....	7250	170	....
Doane 3½	5100	Wau CU	4¾x5¾	30.6	L	C	Own	PT	F	Mas	G	Wau	B-Li	DD	Bos	.....	B-Li	U	3	Own	Own	C	Own	D	9.5	38	Lav	36x5	36x5†	Wes	.....	7000	169	79
Dorris K7	4400	Own	4¼x5½	28.9	H	C	MeC	Fin	F	Strm	G	Own	Own	DP	Bos	.....	W-Gr	A	4	Spic	Row	W	Timk	Flot	10.33	51.5	Ros	36x5	36x10	Smi	.....	6750	194	70
Duplex E	4250	Buda TU	4¼x5½	28.9	H	C	.....	ZZT	FS	Sheb	G	Pier	B-Li	DD	Eis	.....	B-Li	U	4	Pet	Tut	I	Own	D	8	32	Woh	36x8	36x8	Pru	.....	6050	130	60
Erie 3½	.....	Buda HTU	4¼x5½	28.9	L	C	McC	.....	FS	Strm	V	Wau	B.B.	DP	Bos	.....	Full	A	4	Spic	Per	W	Shel	.....	.....	.....	Ros	36x5	40x5†	Hoo	Fir	7200	168	80
Fageol 4500	5000	Wau DU	4½x6¼	32.4	L	C	Mod	C	F	Zen	V	Wau	Det	DD	Spl	.....	Own	A	5	Spic	Math	W	Timk	Flot	7.4	79	Ros	36x5	40x5	Stn	.....	7300	172	80
*Federal WE	3950	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	10.33	51.56	Gem	36x5	36x5†	Smi	Fir	6990	156	74.5
Garford 77D	.....	Buda YTU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	Sim	B-Li	DD	Spl	.....	Own	A	4	Spic	Per	W	Timk	...	8.7	.....	Ros	36x5 •	36x5†	Smi	.....	7550	162	....
*Garv KT	4050	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Mas	G	MeC	B-Li	DD	Eis	.....	B-Li	A	4	Hart	Det	W	Timk	Flot	10.33	41.32	Ros	36x5	40x5†	Pru	.....	7000	162	70
Giant 17	4450	Cont E4	4½x5½	32.4	L	P	Own	.....	B	Strm	G	Mon	.....	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Timk	.....	10.25	49.61	Ros	36x5	36x5†	Way	.....	6800	176	70
G. M. C. K-71	.....	Own	4½x6	32.4	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	.....	Own	A	7	Own	Det	W	Timk	Flot	8.75	.....	Own	36x5	40x5	Own	.....	7714	Op	Opt
Gramm-Bernstein 35	4375	Hink	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Hink	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Eat	½-Fl	8.7	50.6	Ros	36x5	40x5†	Smi	Fir	8350	156	91.7
Hahn F	.....	Cont E4	4½x5½	32.4	L	C	Own	PT	F	Strm	...	Pier	.....	DD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	.....	10	.....	Ros	36x5	36x5†	.....	.....	6600	Op	65
Hal-Fur B	3250	Hin HA-500	4¼x5½	28.9	L	G	GO	PT	F	Strm	V	Hin	B.B.	P	Bos	W	B-Li	A	4	Pet	Per	W	Timk	Flot	7.75	57.4	Gem	35x5*	Opt	Smi	Fir	5000	Gp	70
Hall 3½ Worm	4100	Cont E4	4½x5½	32.4	L	T	Own	PT	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	A	..	Opt	Det	W	Timk	.....	10	.....	Gem	36x5	36x5†	Smi	.....	6825	Op	....
Harvey WHA	4300	Buda YU	4½x6	32.4	L	G	.....	Fin	FS	Strm	G	Mon	B.B.	....	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	.....	8.7	42.35	Ros	36x5	36x5†	Smi	.....	7700	160	80
Hendrickson J	3975	Buda HTU	4¼x5½	28.9	L	C	.....	.....	F	Strm	G	McC	.....	D	Spl	.....	Full	A	4	Ther	Tut	W	Timk	.....	10	49.6	Ros	36x5	36x5...	Stn	.....	.....	Op	80
Hewitt-Ludlow	.....	Buda YTU	4½x6	32.4	...	...	Mod	Fin	...	Strm	...	.....	B-Li	DP	Bos	.....	.....	...	...	Spic	.....	...	Shel	½-Fl	.....	.....	Ros	36x5	36x5†	.....	.....	7500	156	....
Hurlburt	4590	Buda YTU	4½x6	32.4	L	C	Own	.....	FS	Flch	G	Dup	B-Li	D	Eis	.....	B-Li	A	4	Spic	Per	W	Own	Flot	8.7	41.91	Ros	36x5	36x5	Way	.....	6400	156	....
Indiana 35	3750	Own 40	4¾x5½	30.6	L	C	MeC	Fin	F	Strm	G	Pier	B.B.	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½-Fl	10.2	49.6	Woh	36x5	36x5†	Smi	.....	7050	160	75
Independent K, (Ohio)	4285	Cont L4	4½x5½	32.4	L	G	Lng	PT	...	Strm	G	.....	Full	DP	Eis	.....	Full	U	4	Spic	Mat	W	Wis	.....	10	48	Ros	36x5	36x10†	.....	.....	5400	160	85
International L	4500	Own L	4¼x5	28.9	H	T	Own	Fin	FS	Ens	G	Own	Own	DP	Spl	Own	Own	A	4	Own	.....	I	Own	D	11	53.25	Own	36x5	40x10	Own	.....	7500	160	50
Jackson B	4550	Cont E4	4½x5½	32.4	L	G	Lng	Fin	FS	Strm	V	Pier	B.B.	DP	Eis	Dy	Own	A	4	Spic	Per	B	Own	Flot	9.2	43.49	Ros	36x7	36x7	.....	.....	7400	150	65
Jumbo 35	4080	Buda YTU	4¼x6	32.4	L	C	Own	Fin	F	Zen	G	Sim	B-Li	D	Eis	.....	B-Li	U	4	Spic	Per	I	Cl	D	9	48.15	Jac	36x5	36x10	Day	.....	7510	165	75
Kalamazoo K	4300	Wis UAU	4¼x6	28.9	L	C	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	Acm	Shel	W	Shel	½-Fl	10.25	49.8	Ros	36x5	36x5†	Smi	.....	7500	160	80
Kelly-Springfield K40	4400	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	Own	Per	C	Own	D	10.49	31.69	Gem	36x5	40x5†	StM	.....	7730	150	93
Kelly-Springfield K-41	4200	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	I	Cl	D	10	50.7	Gem	36x5	40x5†	Cla	.....	7900	156	90
Kelly-Springfield K-42	4200	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	W	Eat	½-Fl	10.25	51.97	Gem	36x5	40x5†	Smi	.....	8500	156	90
Kleiber C	4900	Cont E4	4½x5½	32.4	L	C	RT	PT	...	Strm	G	.....	.....	WD	Bos	.....	B-Li	A	4	Spic	....	W	Timk	Flot	8.75	42.35	Ros	36x5	36x10	W-L	.....	7200	163	75
*Larrabee-Deyo L	4200	Cont E4	4½x5½	32.4	L	C	Bus	Fin	S	Sheb	G	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Opt	Mer	W	Shel	½-Fl	10	41	Ros	36x5	36x5†	Smi	.....	6850	186	....
Maccar M2	4500	Wis VAU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	U	4	Spic	Mer	W	Timk	Flot	8.75	46.81	Ros	36x5	36x5†	Day	Fir	6300	174	70
*Mack AC3½	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	8.49	27.20	Own	36x5	40x5†	Sch	.....	8070	Op	65
Master A	4190	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	10	41.32	Ros	36x5	40x5†	Smi	.....	7000	158	72
Master AL	4290	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	10	41.32	Ros	36x5	40x5†	Smi	.....	7200	194	72
Master E	4640	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	11.5	46	Ros	36x5	40x5†	Wal	.....	7000	158	72
Master EL	4740	Buda YTU	4½x6	32.4	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	11.5	46	Ros	36x5	40x5†	Wal	.....	7200	194	72
Menominee G	4270	Wis VAU	4½x6	32.4	L	C	.....	Fin	FS	Strm	G	Mon	Det	DP	Eis	.....	Cott	A	4	Spic	Tut	W	Timk	.....	10.3	56.16	Ros	36x5	36x5†	Stn	Fir	.....	160	80
*Nelson & LeMoon F3½	.....	Cont E4	4½x6½	32.4	T	C	Chic	Fin	S	Strm	G	Mon	B-Li	DD	Bos	W	B-Li	U	4	Own	Tut	W	Timk	.....	8.7	42	Lav	36x5	36x5†	Pru	Gdy	6000	Op	80
Noble E70	.....	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Strm	G	Pier	Full	DP	Eis	W	W-Gr	A	4	M-E	Tut	W	Shel	½-Fl	8.7	42	Lav	36x5	36x10	Bim	Fir	7500	182	85
Northway B3	.....	Own	4 x6	25.6	H	C	GO	C	F	Strm	V	Pier	Full	DP	Wag	W	Full	U	4	Spic	Per	W	Shel	½-Fl	10	49.2	Ros	36x5	40x5†	Cla	.....	7700	Op	72
O.K. 3½ T	4250	Buda YTU	4½x6	28.9	L	G	RT	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	A	4	Hart	Cham	W	Wis	½-Fl	10	60	Ros	36x5*	36x5†	Bim	.....	.....	164	....
*Old Reliable C	4500	Wis UAU	4¼x6	28.9	...	C	Chic	PT	FS	Strm	V	Mon	Full	DD	Bos	.....	Full	A	4	Spic	Shel	W	Shel	½-Fl	8.7	42.5	Ros	34x5	36x5†	StM	.....	6650	168	75
*Oneida D9	4345	Oneida	4½x5½	32.4	L	C	Own	C	F	Strm	V	Own	Own	DP	.....	.....	Own	A	4	Own	Math	W	Timk	Flot	10.33	49.6	.....	36x5	36x10	.....	.....	7250	170	....
*Orleans C	.....	Her MU 2	4¼x5½	28.9	L	C	Chic	PT	F	Mas	G	.....	Det	DD	Eis	.....	Cott	A	4	Bld	Mar	W	Wis	½-Fl	10.33	.....	Ros	36x4½	36x8	Smi	Fir	6125	166	80
*Paige 51-18	4285	Hin HA 200	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	10.3	50.01	Ros	36x5	36x5†	Own	Fir	7000	160	85
Parker J20	4400	Wis VAU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	Mon	B-Li	DD	Bos	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	8.75	43.6	Ros	38x7*	44x10*	Smi	.....	6550	160	76
*Pierce Arrow W2	4950	Own	4½x6¾	32.4	T	G	.....	PT	F	Strm	F	Own	.....	DD	Del	Opt	.....	A	4	.....	.....	W	.....	.....	8	49	....	36x5	36x5†	Day	.....	8350	162	85
Powers C	.....	Hink HA	4½x5½	32.4	L	G	GO	PT	F	Zen	V	Hin	Full	DD	Eis	W	Full	A	4	UM	Row	W	Wis	½-Fl	10	.....	Ros	36x5	40x10	StM	.....	6420	160	78
Rainier R-15	4500	Cont L4	4½x5½	32.4	L	G	EM	PT	FS	Zen	V	Pier	B-Li	DP	Eis	.....	B-Li	A	4	Spic	Per	W	Tim	.....	.....	.....	Ros	36x5	36x5†	.....	Fir	.....	170	70
*Republic 20	3845	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Strm	G	Phar	Full	DD	Bos	.....	Full	U	4	Hart	Math	I	Torb	D	10.25	49.25	Jac	36x5	36x10	Smi	Fir	6360	165	....
Reynolds 7A	.....	Hink HA 1600	4½x5½	32.4	H	C	Lng	Fin	F	Strm	G	Hin	Covt	DD	Bos	W	Covt	A	4	Sned	Per	W	Shel	.....	8.7	44.36	Lav	36x5	36x5†	Smi	.....	.....	176	80
*Sandow M	4295	Cont E4	4½x5½	32.4	L	G	.....	Fin	FS	Strm	G	Mon	.....	DD	Bos	.....	B-Li	A	4	Spic	GC	W	Timk	.....	10	42	Ros	36x5	36x5†	Pru	.....	6500	175	70
Sanford W35	4200	Cont E4	4½x5½	32.4	L	G	MeC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Per	W	Shel	½-Fl	8.7	34.8	Ros	36x5	36x5†	Hoo	Fir	6750	174	75
Schacht	4350	Buda XTU	4¼x6	28.9	L	G	Own	PT	F	Sheb	G	Dup	Own	C	Bos	.....	Own	A	4	M&E	Nat	W	Own	Flot	.....	.....	Own	36x5	36x5†	StM	.....	6500	168	70
Selden 3½A	4175	Cont E7	4½x5½	32.4	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	8.7	42	Gem	36x5	36x10	Stn	.....	7200	162	54.5
Service 71	4285	Buda HU	4¼x5½	28.9	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	.....	W	Timk	.....	8.75	42.35	Ros	36x5	36x5†	Stn	.....	6930	171	70
Service 76	4485	Buda YU	4½x6	32.4	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	....	W	Timk	.....	7.8	37.75	Ros	36x5	36x5†	Stn	.....	7280	171	70

Signal M	4275	Cont E4	4½x5½	32.4	L	C	McC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	12	58.08	Ros	36x5	40x10						
Standard 66	.....	Cont E7	4½x5½	32.4	L	C	Lng	Fin	S	Strm	V	Mon	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	12	58.08	Ros	36x5	40x10						

Signal M.	4275	Cont E4	4½x5½	32.4	L	C	McC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	....	B-Li	A	4	Spic	Det	W	Timk	Flot	12	58.08	Ros	36x5	40x10	Hay	....	7780	168	78
Standard 66	....	Cont E7	4½x5½	32.4	L	C	Lng	Fin	S	Strm	V	Mon	B-Li	DD	Eis	....	B-Li	A	4	Spic	Per	W	Timk	Flot	10.3	50	Gem	36x5	36x5†	....	....	6480	160	70
Sterling 3½	4650	Ster DU	4½x6¼	32.4	L	C	Own	C	F	Rayf	V	Wau	H-S	WD	Eis	....	Own	A	3	Spic	Math	W	Timk	Flot	8.75	39.5	Ros	36x5	40x5†	Pru	....	8300	162	92
Stewart 10	3850	Cont E7	4½x5½	32.4	L	G	Bus	PT	FS	Zen	G	Pier	Full	DP	Eis	....	Full	U	4	Hart	Det	I	Cl	D	10	48	Ros	36x5	36x5†	Cla	Fir	6080	165	80
Stewart 10X	3850	Buda YTU	4½x6	32	...	G	Bus	T	FF	Zen	G	Pier	Full	DP	Eis	....	Full	U	4	Hart	Det	I	Cl	D	10	48.01	Ross	36x5	36x5	Cla	Fir	....	165	80
*Super Truck 70	4300	Wis	4¼x6	28.9	L	C	Chic	Fin	F	Zen	G	Sim	Full	....	Bos	....	Full	A	4	Spic	Shel	W	Shel	½Fl	10.25	49.2	Ros	36x5	40x5	Smi	....	7300	164	....
Tiffin PW	4760	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Sheb	G	Pier	B.B.	DP	Bos	W	Full	A	4	Pet	Kal	W	Shel	....	8.7	41.7	Ros	36x5	40x5†	Smi	....	6850	160	80
Titan 3½	4550	Buda YTU	4½x6	32.4	L	C	B&W	ZZT	F	Strm	G	Sim	B.B.	DP	Eis	....	Cott	A	4	UP	Math	I	Cl	D	9	48	Lav	36x5	40x5†	Day	....	7300	156	70
Tower G3½	4400	Cont E4	4½x5½	32.4	L	C	Own	PT	S	Zen	G	Pier	Full	DP	Eis	....	Full	U	4	Spic	Det	W	Timk	Flot	10.33	50	Ros	36x5	36x5†	Pru	Gdy	7010	165	70
Transport 70	4195	Buda	4½x6	32.5	L	G	Mod	C	F	Strm	G	Dup	B.B.	D	Eis	....	Cott	U	4	Hart	Det	I	Cl	D	10.1	52	Jac	36x5	36x10	....	Fir	7150	170	80
Twin City 3½	....	Own	4¼x6	28.9	H	C	Mod	H	F	Sheb	V	Own	B.B.	D	Bos	....	Full	A	4	Spic	Math	W	Timk	....	10.33	49.58	Ros	36x5	40x5†	Smi	....	6800	168	80
Twin City 4 Wheel D. B.	4750	Wis JA	5⅛x6	42	T	C	....	C	FS	Strm	G	Pier	M-E	WD	KW	....	Cott	A	3	Bld	....	I	Own	½Fl	....	....	Ros	36x6	36x6	Arc	....	7200	146	60
United C 3½	3975	Buda HTU	4¼x5½	28.9	L	C	Mod	....	F	Holl	G	Sim	Full	DD	Eis	Opt	Full	A	4	Bld	Bea	I	Cl	D	10	48.1	Lav	36x5	36x5†	Cla	....	6700	157	70
Ward LaFrance 4A	4690	....	4½x6¼	32.4	L	C	Own	Fin	F	Zen	G	....	B-Li	DP	Bos	....	B-Li	A	4	M&E	Mer	W	Timk	....	7.8	37.75	Ros	36x5	36x5†	Smi	....	7750	162	85
*Watson N.	4250	Cont E4	4½x5½	32.4	L	P	R-T	PT	FS	Strm	G	Pier	B-Li	D	Sim	....	B-Li	A	4	Spic	Shel	W	Wis	¾Fl	9	43.56	Gem	36x5	36x10	C&M	....	6600	168	75
White 40	4500	Own	3¾x5¾	22.5	L	C	....	Fin	F	Own	V	Own	Own	D	....	....	....	U	4	Own	....	R	Own	Flot	....	....	Own	36x5	40x5†	....	....	7075	174	....
Wichita O.	4000	Beav JA	4¼x6	28.9	H	G	EM	C	F	Strm	G	Dup	....	C	Ber	....	....	A	4	Own	Det	W	Shel	½Fl	11.75	61.10	Ros	36x5	36x5†	Smi	....	6500	165	80
Wilcox E.	....	Buda	4½x6	32.4	L	G	....	PT	S	Strm	G	Dup	Own	C	Bos	....	Own	A	4	Own	Shel	W	Wis	½Fl	10	45.1	Own	36x5	36x5†	....	....	6600	147	75
Wilson G.	4300	Own	4¼x5½	28.9	L	G	....	PT	FS	Mar	V	Pier	B.B.	D	Eis	....	Own	A	4	K-B	Per	W	Timk	....	8.7	42.3	Ros	36x5	36x5†	Smi	....	6800	160	80
Winther 70	4200	Wis TAU	4 x6	25.6	L	G	Brm	PT	F	Mas	V	....	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	9	36	Ros	36x5.	36x5†	Cla	Fir	6400	150	85
Wolverine L.	....	Cont L	4½x5½	32.4	L	G	Lng	....	FS	Strm	G	Phar	Full	DP	Eis	Bj	Full	U	4	Up	....	I	Cl	D	11.1	44	Ros	36x5	36x10	Cla	Gdy	6800	186	80

4 Ton

*American	4575	Wis	4½x6	32.4	L	G	GO	Fin	F	Strm	G	Own	Det	DP	Eis	....	Cott	A	4	Acm	SP	W	Wis	½Fl	10	....	Lav	36x5	36x5†	Smi	....	6475	158	....
Bessemer K2	....	Cont E7	4½x5½	32.4	L	C	....	C	FS	Strm	G	Pier	B.B.	DP	Bos	....	B-Li	A	4	Spic	Per	I	Torb	D	10	49.5	Ros	36x5	36x10†	Sch	Fir	6740	175	75
Bethehem J.	3995	Own J	4½x5½	32.6	L	T	Liv	C	F	Zen	G	Pier	Full	DD	Bos	GD	Full	U	4	UP	Math	I	Torb	Flot	10.2	49	Lav	36x5	36x5†	Smi	....	6100	162	....
Bridgeport 4C	3850	Buda YTU	4½x6	32.4	L	G	Own	Fin	FS	Strm	...	Pier	B.B.	D	Eis	....	Cott	A	4	Hart	Per	W	Eat	....	10	....	Ros	36x5	36x10	Arc	....	9000	170	70
Denby 27	4600	Cont E7	4½x5½	32.4	L	C	Lng	PT	FS	Strm	G	Sim	Full	DD	Eis	....	Full	A	4	Spic	Det	I	Cl	D	10	49.9	Ros	36x5	36x5†	Smi	Fir	7020	170	78
Double-Drive B.	4000	Buda HTU	4¼x5½	28.9	L	G	....	PT	F	Zen	V	Pier	B.B.	DD	Spl	Opt	Own	A	4	Own	Own	W	Own	½Fl	9.75	48.75	Lav	36x6	36x6	Stn	....	....	130	55
Highway-Knight A.	....	R & V-W	4 x6	25.6	S	T	Own	PT	F	Zen	V	Mon	Pet	DP	Eis	Wg	Own	A	4	Ther	....	W	Shel	....	8.7	42.3	Ros	36x5	36x6†	Sch	....	7400	159	90
Jumbo 40	4730	Buda YTU	4½x6	32.4	L	C	Own	Fin	F	Zen	G	Sim	B-Li	D	Eis	....	B-Li	U	4	Spic	Per	I	Cl	D	10	53.5	Jac	38x7*	44x10	Cla	....	7760	165	75
*Kimball E.	5000	Wis RAU	4¾x6	36.1	L	C	Flex	PT	F	Zen	V	Dup	B-Li	DP	Ber	W	B-Li	A	4	Spic	US	W	Shel	½Fl	8.7	42.3	Ros	36x5	40x12	Smi	Fir	8100	Op	66
King Zeitler	....	Cont E4....	4½x5½	32.4	L	G	....	PT	FS	Strm	G	Pier	B-Li	DD	Bos	....	B-Li	A	4	Ther	Mer	W	Timk	Flot	10	49	Lav	36x5	40x5†	StM	....	6500	172	80
*Kissel Heavy Duty	4475	Own 14000	4¼x5½	28.9	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	....	W-Gr	A	4	Spic	Shel	W	Shel	½Fl	11.7	58.6	Ros	36x5	36x5†	Smi	....	7200	168	75
*Moreland 20G	4975	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Mas	G	Con	Own	DD	Spl	....	Own	A	5	Ther	US	W	Timk	....	7.8	37.7	Ros	36x5	40x5†	Smi	....	7810	168	....
Riker BB.	4700	Own	4¼x6	28.9	T	C	...	Fin	FS	BB	G	Own	....	C	Ber	W	....	A		Own	....	W	Own	½Fl	10	42.5	Ros	36x5	36x6†	....	....	7200	150	77
Rowe HW 4	4500	Wis UAU	4¼x6	28.9	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	....	B-Li	U	4	Spic	Shel	W	Shel	....	8.7	35	Ros	36x5	36x6†	Hoo	....	6370	156	77
Schwartz DWS	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	....	Full	A	4	ME	Row	W	Shel	....	12	72	Ros	36x6	40x12	Smi	Fir	9000	156	....
Schwartz DW.	4900	BudaYTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	....	Full	A	4	ME	Row	W	Shel	....	12	72	Ros	36x6	40x12	Smi	Fir	9000	170	....
Schwartz DWL	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	....	Full	A	4	ME	Row	W	Shel	....	12	72	Ros	36x6	40x12	Smi	Fir	9000	186	....
Traylor E.	4700	Buda YTU	4½x6	32.6	...	P	....	GO	S	Zen	G	Pier	B-Li	D	Spl	....	B-Li	A	4	....	....	....	Shel	....	....	....	Ros	36x5	40x5†	Smi	....	8000	170	....
Union H.	3975	Wis VAU	4½x6	32.4	L	G	GO	Fin	F	Sheb	G	Dup	Full	DD	Eis	LN	Full	U	4	UP	Mat	I	Torb	....	10.25	49.2	Ros	36x6	36x10	Smi	....	6800	174	75
U. S., S.	....	Own	4½x5½	32.4	...	C	Lng	Fin	F	Strm	V	Own	B-Li	DD	Eis	Opt	B-Li	A	4	Opt	Shel	W	Shel	½Fl	10.25	49.6	Lav	36x5	36x5†	Sch	....	7600	168	85

5 Ton

Acason M.	....	Wau EU	5 x6¼	40	L	G	Can	Fin	FS	Sheb	V	Wau	Det	....	Eis	....	Cott	A	4	Bld	Det	W	Timk	....	10.25	53.3	Ros	36x6	40x6†	Smi	Opt	8350	187	....
*Acme E.	5150	Cont B2	4¾x6	36.1	L	C	GO	Fin	F	Rayf	V	Con	B.B.	DP	Eis	....	Cott	A	4	Bld	Det	W	Timk	Flot	11.66	60.66	Ros	36x6	40x12	Smi	....	8980	180	56
Atterbury 8E	5575	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Zen	V	Con	B-Li	DD	Ber	....	B-Li	A	4	Spic	SP	W	Timk	Flot	11.6	56.1	Gem	36x5	40x6†	Stn	....	9496	167	81¾
Atterbury 8E-LWB	5775	Cont B-2	4¾x6	36.1	...	G	Own	Fin	F	Zen	V	Con	B-Li	DD	Ber	....	B-Li	A	4	Spi	SP	W	Timk	Flot	11.6	56.1	Gem	36x5	40x6†	Stn	....	9816	192	....
*Available H5	5375	Her T2	4¾x6	36.1	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	....	B-Li	A	4	Spic	Tut	W	Timk	Flot	11.3	60.45	Ros	36x6	40x12	Smi	....	9500	190	75
Brockway T.	5250	Cont B2	4¾x6	36.1	L	C	Bus	Fin	F	Strm	V	Phar	B-Li	DD	Eis	....	B-Li	A	4	Spic	Mer	W	Timk	....	10.25	54.8	Gem	36x6	40x6†	Smi	....	8800	174	70
*Chicago D5	....	Her MU3	4½x5½	32.4	L	C	....	T	F	Strm	G	Sim	B-Li	D	Bos	....	B-Li	A	4	Pet	Math	W	Timk	Flot	13.66	63.1	Gem	36x6	40x12	Opt	Sta	6900	168	....
Clydesdale 120 C.	5500	Own T2	4¾x6	36.1	L	G	Own	PT	F	Zen	V	Own	B-Li	DD	Bos	....	B-Li	A	4	Spic	Stan	W	Timk	Flot	11.66	62.4	Ros	36x6	40x12	Smi	....	8990	176	76
Corbitt AA.	5500	Cont B2	4¾x6	36.1	L	C	McC	Fin	F	Strm	V	Con	B-Li	DD	Eis	....	B-Li	A	4	Bld	Shel	W	Shel	½Fl	10.25	49.6	Ros	36x6	40x6†	Smi	....	9685	178	70
Couple Gear AC	6700	Wis	5¼x7	44.1	T	G	Idl	H	F	Strm	G	....	....	....	Eis	Own	Own	...	5	Own	Tut	B	Own	....	25	....	Own	36x5†	36x5†	Own	Own	11000	144	60
Day-Elder E.	4600	Buda YU	4½x6	32.4	L	C	Bus	Fin	F	Zen	G	Mon	B-Li	DD	Eis	....	B-Li	A	4	Hart	Shel	W	Shel	½Fl	10.25	49.61	Gem	36x5	40x6†	Smi	Fir	8250	170	70
Denby 210	5350	Cont E7	4½x5½	32.4	L	C	Lng	PT	FS	Strm	G	Sim	Full	DD	Eis	....	W-Gr	A	4	Spic	Det	I	Cl	D	12.5	62.7	Ros	36x6	40x6†	Cla	Fir	8590	170	80
*Diamond T-EL	5400	Hin	4½x5½	32.4	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	....	Covt	A	4	Spic	Math	W	Timk	Flot	11.66	59.11	Gem	36x6	40x6†	....	....	8625	180	....
*Diamond TS	5650	....	4¾x6	36.1	L	C	GO	Fin	F	Strm	V	Own	B-Li	DD	Bos	....	B-Li	A	4	Spic	Math	W	Timk	Flot	11.66	56.43	Gem	36x6	40x6†	....	....	8750	180	....
Fageol 5300	5700	Wau DU	4½x6¼	32.4	L	C	Mod	C	F	Zen	V	Wau	Det	DD	Spl	....	Own	A	5	Spic	Math	W	Timk	Flot	8.4	89	Ros	36x6	40x6†	Stn	....	8300	172	80
Federal XE.	4600	ContE4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B-Bi	DP	Eis	....	Own	A	4	Spic	Math	W	Timk	Flot	13.66	68 19	Gem	36x6	40x6†	Smi	Fir	8100	156	77 5
Garford 68	....	Wis AU	4¾x5½	36.1	T	C	Own	Fin	F	Rayf	G	Sim	B-Li	DD	Eis	....	Own	A	4	Spic	Per	C	Own	D	11.44	....	Ros	36x6	40x6†	Smi	....	8870	128	....
Garford 68 D	....	Buda BTU	5 x6½	40	L	C	Own	Fin	F	Strm	G	Sim	B-Li	DD	Spl	....	Own	A	4	Spic	Per	W	Timk	Flot	8.8	....	Ros	36x6	40x6†	Smi	....	9100	162	....
*Gary M.	5150	Buda BTU	5 x6½	40	L	C	Chic	Fin	F	Mas	G	McC	B-Li	DD	Eis	....	B-Li	A	4	Hart	Det	W	Timk	Flot	11.66	56.4	Ros	36x6	40x6†	Day	....	8500	182	72
Giant 18	5500	Cont	4½x5½	32.4	L	P	Own	....	B	Sheb	G	Mon	B-Li	DD	Eis	....	B-Li	A	4	Spic	Math	W	Timk	....	10.25	49.61	Ros	36x6	40x10	Smi	....	7500	196	85
G. M. C. K-101	....	Own	4½x6	32.4	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	....	Own	A	7	Own	Det	W	Timk	Flot	10	....	Own	36x6	40x6	Own	....	8535	Op	Opt
Gramm-Bernstein 50	5275	Lib B	4¾x6	36.1	L	C	Own	Fin	F	Strm	V	Con	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Eat	½Fl	9.5	55	Ros	36x6	40x6†	Smi	....	9860	168	92.2
Hahn FE.	....	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Strm	V	Con	....	DD	Bos	....	B-Li	A	4	Spic	....	W	Timk	....	10	....	Ros	36x6	40x6†	....	....	8400	Op	65
Hall 5 Worm	5100	Cont E4	4¼x5½	28.9	L	G	Own	Fin	FS	Zen	G	Dup	B-Li	DP	Bos	....	B-Li	U	..	Opt	Det	C	Timk	D	12	....	Gem	36x5	40x6†	Smi	....	7530	Op	....
Harvey WKA.	5200	Buda YU	4½x6	32.4	L	G	....	ZZT	FS	Strm	G	Mon	B.B.	DP	Eis	....	B-Li	A	4	Spic	Shel	W	Shel	....	8.7	42.3	Ros	36x6	40x6†	Smi	....	8900	160	80
Hendrickson K.	4800	Wau EU	5 x6¼	40	L	C	....	....	F	Strm	G	Wau	....	D	Spl	....	Full	...	4	Ther	Tut	W	Timk	....	12	57	Ros	36x6	40x6†	Stn	....	....	Op	....
Hewitt Ludlow Chain	....	Buda YTU	4½x6	32.4	...	...	Mod	Fin	...	Strm	V	....	B-Li	DP	Bos	....	Own	...	..	Spic	....	....	Own	....	....	....	Ros	36x6*	40x6†	....	....	9000	168	....
Highway-Knight B5	....	R&V-W	4 x6	25.6	S	T	Own	PT	F	Zen	V	Mon	Own	DP	Eis	Wg	Own	A	4	Ther	....	W	Shel	....	10	49.14	Ros	36x5	40x6†	Sch	....	8650	159	90
Hurlburt	5500	Buda YTU	4½x6	32.4	L	C	Own	....	FS	Flch	G	Dup	B-Li	D	Eis	....	B-Li	A	4	Spic	Per	W	Own	Flot	11	49.9	Ros	36x5	40x6†	Wau	....	7800	156	....
Indiana 51	4775	Wau EU	5 x6¼	40	L	C	McC	Fin	F	Strm	G	Wau	B.B.	DD	Eis	....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.25	42.3	Woh	36x5	40x6†	Smi	....	9000	170	76.8
Kelly-Springfield K50	4900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	4	Own	Per	C	Own	D	12.24	44.74	Gem	36x6	40x6†	Smi	....	8400	150	93
*Kimball F.	5975	WisRBU	5 x6	40	L	C	Flex	PT	F	Zen	V	Dup	Full	DP	Ber	W	Full	A	4	Spic	US	W	Shel	½Fl	8.75	52.5	Ros	36x6	40x7†	Smi	Fir	8400	Op	66
Kissel Goliath	5085	Own 60000	4¼x5½	28.9	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	....	W-Gr	A	4	Spic	Shel	W	Shel	½Fl	13	65	Ros	36x6	36x6†	Smi	....	7900	180	75
Kleiber D.	5600	Buda T	5 x6½	40	L	C	RT	PT	...	Strm	G	Sim	....	WD	Bos	....	B-Li	A	4	Spic	....	W	Timk	Flot	11.66	56.48	Ros	36x6	40x6	Smi	....	9200	180	75
Larrabee-Deyo W.	5100	Cont B2	4¾x6	36.1	L	C	Bus	Fin	F	Sheb	G	Sim	B-Li	DD	Bos	....	B-Li	A	4	Opt	Mer	W	Shel	½Fl	10	51	Ros	36x6	40x6†	Smi	....	9900	186	....
*Mack AC5	5500	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	....	Own	UJ	3	Spic	Mer	C	Own	D	9	28.89	Own	36x6	40x6†	Sch	....	8650	Op	68
Master B.	5290	Buda ATU	4¾x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	....	B-Li	A	4	Spic	Det	W	Timk	Flot	10	49.6	Ros	36x6	40x6†	Smi	....	8000	170	72
Master BL.	5390	Buda ATU	4¾x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	....	B-Li	A	4	Spic	Det	W	Timk	Flot	10	49.6	Ros	36x6	40x6†	Smi	....	8200	194	72
Master F.	5440	Buda ATU	4¾x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	....	B-Li	A	4	Spic	Det	R	Walk	Flot	11.5	55.6	Ros	36x6	40x6†	Wal	....	8000	170	72
Master FL.	5540	Buda ATU	4¾x6½	36.1	L	C	Chic	PT	FS	Mas	V	Pier	B-Li	DP	Eis	...	B-Li	A	4	Spic	Det	R	Walk	Flot	11.5	55.6	Ros	36x6	40x6†	Wal	....	8200	194	72
Menominee J.	5450	Wis RAU	4¾x6	36.1	L	C	....	Fin	FS	Strm	G	Mon	Det	DP	Eis	....	Cott	A	4	Spic	Tut	W	Timk	....	11.6	61.43	Ros	36x6	40x6†	Stn	Fir	....	160	80
*Moreland 20J	5350	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Mas	G	Con	Own	DD	Spl	....	Own	A	5	Ther	US	W	Timk	....	10.4	49.6	Ros	36x6	40x6†	Smi	....	9000	168	....
*Nelson & LeMoon FC5	....	Cont B2	4¾x6	36	L	C	Chic	PT	F	Strm	G	Pier	B-Li	DD	Bos	W	B-Li	A	4	Own	Tut	W	Timk	....	11.66	....	Lav	36x6	40x6†	Pru	Gdy	8000	Op	80

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight	Wheelbase	Pr. Cent of Weight on Rear Wheels
5 Ton—Con'd		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23			
*Old Reliable D.	5500	Wis RAU	4¾ x6	36.1	...	C	Chic	PT	FS	Strm	V	Mon	W-Gr	WD	Bos	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.25	41.5	Ros	36x5	40x6	StM	.....	8400	180	80
*Oneida E9.	5460	Oneida	4½x5½	32.4	H	C	Own	C	F	Strm	V	Own	Own	DP	Bos	.....	Own	A	4	Own	Math	W	Timk	Flot	11.66	70	....	36x6	40x12	.....	.....	9170	180	....
*Packard EF.	5550	Own	5 x5½	40	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	11.66	49	Ros	36x6	40x6	.....	.....	8400	156	57.2
Parker M20.	5500	Wis RAU	4¾ x6	36.1	L	C	Own	PT	F	Strm	G	Sim	B-Li	DD	Bos	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	10	51.1	Ros	36x6	40x6†	Smi	.....	8400	160	78
*Pierce Arrow R10.	5700	Own	4½x6¾	32.4	T	C	.....	Fin	F	Strm	F	Own	.....	DD	Del	Opt	.....	A	4	.....	.....	W	.....	.....	10	61.2	.....	36x5	40x6†	Day	.....	9300	168	85
Rainier R-17.	5250	Cont B-2	4½x5½	32.4	L	G	EM	Fin	F	Zen	V	Pier	B-Li	DP	.....	.....	B-Li	A	4	Spi	.....	W	Timk	Flot	.....	.....	.....	36x6	36x36†	Way	.....	8000	170	....
Reynolds 10A.	.....	Hink HA1600	4½x5½	32.4	H	C	Lng	Fin	F	Strm	G	Hink	Covt	....	Bos	W	Covt	A	4	Sned	Per	W	Shel	.....	10	51.9	Lav	36x6	40x6†	Smi	.....	.....	176	80
Rowe FW5.	5550	Wis VAU	4½x6	32.4	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.7	40.7	Ros	36x6	40x6†	Hoo	.....	8300	169	75
Royal.	.....	Wis RAU	4¾x5½	36.1	T	C	.....	H	...	Strm	...	Mon	.....	WD	Bos	Op	Own	...	...	Own	Mer	W	Timk	.....	.....	.....	.....	Ros	36x6	42x6†	.....	.....	.....	168	....
*Sandow L.	4975	Cont E4	4½x5½	32.4	L	C	.....	Fin	FS	Strm	...	Mon	.....	D	Bos	.....	B-Li	A	4	Spic	GC	W	Timk	.....	12	46.6	Ros	36x6	40x6†	Stn	.....	7800	175	70
Sanford W50.	5100	Cont E4	4½x5½	32.4	L	G	MeC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Per	W	Shel	½Fl	10.75	52.03	Ros	36x5	40x6†	Hoo	Fir	8070	174	75
Schacht.	5350	Buda YTU	4½x6	32.4	L	G	Own	PT	F	Sheb	G	Dup	Own	C	Bos	.....	Own	A	8	M-E	Nat	W	Own	Flot	.....	.....	Own	36x5	40x6†	StM	.....	8000	168	70
Selden 5A.	5600	Cont B2	4¾x6	36.1	L	C	Lng	Fin	F	Strm	G	Con	Det	D	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.25	55	Gem	36x6	40x12	Stn	.....	9650	164	56½
Service 101.	5600	Cont B2	4¾x6	36.1	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	.....	W	Timk	.....	10.25	49.6	Ros	36x6	40x6†	Stn	.....	8760	171	75
Signal R.	5275	Buda YU	4½x6	32.4	L	C	.....	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	.....	A	4	Spic	.....	W	Timk	.....	11.6	56.43	Ros	36x6	40x12	Smi	Gdy	9510	180	80
*Standard 5K	5300	Cont B2	4¾x6	36.1	L	C	MeC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	11.66	66	Gem	36x6	40x6†	Day	.....	8700	164	73
Sterling 5-Worm.	.....	Cont B2	4¾x6	36.1	L	C	Lng	Fin	S	Strm	V	Mon	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	8.8	39.79	Ros	36x6	40x6†	Pru	.....	9600	168	92
Sterling 5-Worm.	5500	Ster EU	5 x6¼	40	L	C	Own	C	F	Rayf	V	Wau	H-S	WD	Eis	.....	Own	A	3	Spic	Mat	W	Timk	Flot	7.04	42.5	Ros	36x6	40x6†	Smi	.....	10000	174	91
Sterling 5-Chain.	6000	Ster EU	5 x6¼	40	L	C	Own	C	F	Rayf	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Mat	C	Own	D	7.04	42.5	Ros	36x6	40x6†	Smi	.....	8500	164	....
*Super Truck 100.	5500	Wis	4¾x6	36.1	L	C	Chic	Fin	F	Zen	G	Sim	Full	....	Spl	.....	Full	A	4	Spic	Shel	W	Shel	½Fl	10.25	49.2	Ros	36x5	40x6†	Smi	.....	8400	168	80
Tiffin.	5850	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	.....	10.25	53.3	Ros	36x6	40x6†	Smi	.....	8400	168	80
Titan 6.	5400	Buda YTU	4½x6	32.4	L	C	B&W	ZZT	F	Strm	G	Sim	B.B	DP	Eis	.....	Cott	A	4	Pet	Shel	I	Cl	D	11	59	Lav	36x5	40x6†	Cla	.....	9100	156	70
Traylor F	5100	Buda YTU	4½x6	32.6	..	P	.....	GO	S	Zen	G	Pier	B-Li	D	Spl	.....	Cott	A	3	Bld	.....	I	Own	½Fl	.....	.....	Ros	36x6	40x6†	Stn	.....	8760	171	75
Twin City 4-Wh. Drive D A	5250	Wis JA	5⅛x6	46.2	T	C	.....	H	FS	Strm	G	Pier	M-E	WD	KW	.....	Cott	A	3	Bld	.....	I	Own	½Fl	.....	.....	Ros	36x7	36x7	.....	.....	8000	140	60
United V 5.	5100	Buda YTU	4½x6	32.4	L	C	Mod	.....	F	Strm	G	Sim	Full	DD	Eis	Opt	Full	A	4	Bld	Bea	I	Cl	D	12.5	75.36	Ros	36x5	40x6†	Cla	.....	9150	160	70
U. S., T.	.....	Buda ATU	4¾x6½	36.1	...	C	Lng	Fin	F	Strm	V	Sim	B-Li	DD	Eis	Opt	B-Li	A	4	Opt	Shel	W	Shel	½Fl	10.25	54.8	Lav	36x6	40x6†	Smi	.....	9700	172	90
Walter S.	5600	Wau DU	4½x6¼	32.4	L	G	Bus	Fin	F	Strm	G	Own	B-Li	DP	Bos	W	W-Gr	A	4	M-E	Stan	I	Own	D	9	45	Ros	36x6	40x6†	Day	.....	8000	168	55
Ward La France 5A.	5590		5 x6¼	40	L	C	Own	Fin	F	Zen	G	.....	B-Li	DP	Bos	.....	B-Li	A	4	M-E	Mer	W	Timk	.....	8.8	42.59	Ros	36x6	40x6†	Smi	.....	9300	190	85
White 45.	5000	Own	4¼x5¾	28.9	L	C	.....	Fin	F	Own	V	Own	Own	D	.....	.....	.....	U	4	Own	.....	R	Own	Flot	.....	.....	.....	Own	36x6	40x6†	.....	.....	7925	174	....
Wilcox F	.....	Buda	4¾x6½	36.1	L	C	.....	PT	S	Strm	V	Dup	Own	C	Bos	.....	Own	A	4	Spic	Shel	W	Wis	½Fl	10.25	56.58	Own	36. 5	40x12	Smi	.....	9000	162	80
Wilson H.	5275	Own	4¾x6	36.1	L	G	.....	PT	FS	Mar	V	Pier	B.B.	D	Eis	.....	Own	A	4	K-B	Per	W	Timk	.....	10.25	49.6	Ros	36x6	36x6†	Smi	.....	7500	160	80
Winther 109.	5250	Wis VAU	4½x6	32.4	L	G	Brm	PT	F	Mas	V	Dup	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	12	60.5	Ros	36x5	40x6†	Cla	.....	8300	162	80
5½, 6 and 7 Ton																																		
Aetna 160.	4375	Wis RBU	5 x6	40	L	G	GO	PT	F	Zen	G	Pier	B.B.	P	Bos	.....	Cott	A	4	Spic	Shel	W	Shel	½Fl	10.75	49.61	Ros	36x6	40x6†	.....	.....	7500	180	75
Available H7.	6000	Her T3	5 x6	40	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Tut	R	Sav	½Fl	14	74.90	Ros	36x6	40x14	Smi	.....	10300	190	75
Bridgeport 6D.	4500	Buda YTU	4½x6	32.4	L	G	Own	Fin	FS	Strm	...	Pier	B.B.	D	Eis	.....	Cott	A	4	Hart	Per	W	Eat	.....	13	42	Ros	36x6	36x12	Arc	.....	12000	170	75
Couple Gear LD6.	7450	Wis	5¾x7	52.8	T	G	Idl	H	F	Strm	G	.....	.....	.....	Eis	Own	Own	...	5	Own	Tut	B	Own	.....	12	.....	Own	36x5†	36x6	Own	Own	12000	144	55
Doane 6.	6000	Wau PU	4¾x6¾	36.1	L	C	Own	PT	S	Mas	G	Wau	B-Li	DD	Bos	.....	B-Li	U	3	Own	Own	C	Own	D	10.5	42	Lav	36x6	40x6†	Wes	.....	8500	178	79
Garford 69.	.....	Wis JU	5.1x5½	41.6	T	C	Own	Fin	F	Rayf	G	Sim	B-Li	DD	Eis	.....	Own	A	4	Spic	Per	C	Own	D	11	.....	Ros	36x6	40x7†	Smi	.....	9350	128	....
Hall 7 Chain.	5100	Cont E4	4½x5½	32.4	L	T	Own	PT	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	A	.	Opt	Per	W	Timk	.....	12	.....	Gem	36x6	40x7†	Smi	.....	8400	Op	....
Kelly-Springfield K60.	5100	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	4	Own	Per	C	Own	D	12.39	45.19	Gem	36x6	40x7†	Smi	.....	8900	150	93
Maccar G.	5500	Cont B2	4¾x6	36	L	C	Own	Fin	F	Zen	G	Con	B-Li	DD	Eis	....	B-Li	A	4	Spic	Mer	W	Timk	Flot	10.2	54.83	Ros	36x5	40x6†	Day	Fir	8750	186	70
MacDonald A.	5750	Buda YTU	4½x6	32.4	L	C	Own	PT	F	Strm	G	Dup	B-Li	DD	Spl	.....	B-Li	U	4	Own	Own	.....	Own	D	17.5	77	Own	40x7	Opt	Opt	.....	6000	...	66
*Mack AC6½.	5750	Own	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	10.50	33.70	Own	36x6	40x12	Sch	.....	8672	Op	73
*Mack AC7½.	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	11.58	37.16	Own	36x7	40x7†	Sch	.....	9050	Op	73
*Old Reliable K, L, M.	6250	Wau EU	5 x6¼	40	C	C	Chic	PT	FS	Strm	G	Wau	W-Gr	WD	Bos	.....	Own	A	4	Spic	Shel	C	Own	D	10.86	54.9	Ros	36x6	40x7†	Smi	.....	10240	136	78
Royal 6.	.....	Wis RBU	4¾x6	36.1	...	C	.....	H	...	Strm	G	Mon	.....	WD	Bos	Op	Own	...	..	Own	Mer	W	Timk	.....	.....	.....	Ros	36x6	40x6†	.....	.....	.....	168	....
Royal 7.	.....	Wis RBU	5¼x7	44.1	...	C	.....	H	...	Strm	...	Mon	.....	WD	Bos	Op	Own	A	..	.....	.....	W	Timk	.....	.....	.....	Ros	36x7	40x7†	.....	.....	.....	168	....
Sterling 7½-Chain.	6500	Ster EU	5 x6¼	40	L	C	Own	C	F	Rayf	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Mat	C	Own	D	7.26	43.6	Ros	36x6	40x7†	Smi	.....	11000	174	91
Tiffin 6.	6050	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	.....	10.25	53.3	Ros	36x6	40x12	Smi	.....	9000	168	80
Wichita S.	5000	Beav JB	4½x6	32.4	H	G	EM	C	F	Strm	G	Dup	.....	C	Ber	.....	.....	A	4	Own	Det	R	Own	½Fl	14	66.3	Ros	36x6	40x6†	Smi	.....	9000	165	80
Winther 140.	5900	Wis-RBU	5 x6	40	L	G	Brm	PT	F	Mas	V	Dup	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Cl	D	12	60.5	Ros	36x6	40x7†	Cla	.....	9600	162	80
Gasoline Tractor-Trucks																																		
Federal Light Duty.	3200	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	9.2	40.7	Gem	36x4	36x7	.....	Fir	4700	120	....
Federal Heavy Duty.	4150	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Own	A	4	Spic	Math	W	Timk	Flot	12	59.8	Gem	36x5	36x5†	.....	Fir	6800	114	....
Fulton D.	.....	H Sp 7000	3½x5	19.6	L	T	GO	H	FS	Cart	G	.....	Covt	DP	Ber	.....	Covt	...	3	UP	.....	I	Russ	D	10.2	.....	Lav	36x4	36x6	Hoo	.....	3300	110	68
Garford 70H.	.....	Buda HTU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	Sim	B-Li	DD	Spl	.....	Own	A	4	Spic	Per	W	Timk	.....	.....	.....	Ros	36x4	36x7	.....	.....	4750	119	....
Garford 77C.	.....	Wis AU	4¾x5½	36.1	T	C	Own	Fin	F	Rayf	G	Sim	B-Li	DD	Eis	.....	Own	A	4	Spic	Per	W	Timk	.....	.....	.....	Ros	36x5	40x5†	Smi	.....	7200	105	....
Garford 68.	.....	Wis AU	4¾x5½	36.1	T	C	Own	Fin	F	Rayf	G	Sim	B-Li	.....	Eis	.....	Own	A	4	Spic	Per	C	Own	D	.....	.....	Ros	36x6	40x6	Smi	.....	8450	102	....
Hewitt-Ludlow 5-Ton.	.....	Buda HTU	4¼x5½	28.9	...	C	Mod	Fin	...	Strm	...	.....	.....	DP	Bos	.....	Own	...	...	.....	.....	.....	.....	.....	.....	.....	.....	36x4†	36x4†	.....	.....	5500	...	....
Koehler MT.	3450	Her CU3	4 x5½	25.6	L	C	Own	.....	F	Zen	G	Sim	B-Li	D	Eis	.....	B-Li	A	4	Spic	Math	W	Timk	.....	9.25	37	Lav	36x4	36x7†	Wau	.....	4750	142	....
Kuhn.	.....	Wis	4¼x5½	28.9	T	C	.....	H	S	Rayf	...	.....	.....	C	Bos	.....	.....	...	4	.....	.....	B	Own	.....	.....	.....	.....	36x7	36x7†	.....	.....	9000	138	....
Lombard 140H.P.	.....	Spec 6	5½x6¾	72.7	...	C	Spec	H	F	Strm	P	.....	.....	D	.....	.....	Spec	A	...	.....	.....	W	.....	.....	.....	.....	.....	Spe	.....	.....	.....	.....	18000	...	90
Lombard 50 H.P.	.....	Spec 4	5 x6¼	40	...	C	Spec	H	F	Strm	P	.....	.....	D	.....	.....	Spic	A	...	.....	.....	W	.....	.....	.....	.....	.....	Spe	.....	.....	.....	.....	8000	...	85
*Mack AB 5-Ton.	3400	Own AB	4 x5	25.6	L	C	Own	C	S	Sheb	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	10.5	42.27	Own	36x4	36x4†	Sch	.....	4940	120	....
*Mack AC 7-Ton.	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	10.7	34.60	Own	36x5	40x5†	Sch	.....	7670	119	....
*Mack AC 10-Ton.	5500	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	11.5	37.16	Own	36x6	40x6†	Sch	.....	8250	119	....
*Mack AC 13-Ton.	5750	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	12.9	41.56	Own	36x6	40x12	Sch	.....	8272	119	....
*Mack AC 15-Ton.	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Sheb	G	Own	Own	DP	Spl	.....	Own	UJ	3	Spic	Mer	C	Own	D	14.1	45.26	Own	36x7	40x7†	Sch	.....	8650	119	....
*Master T.	3740	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	MeC	Full	DP	Eis	.....	Full	U	4	Spic	Det	R	Walk	Flot	8	32	Ros	34x4	36x4†	Wal	.....	4500	110	76
*Watson.	4050	Cont E4	4½x5½	32.4	L	P	Jam	C	FS	Strm	G	Pier	B-Li	DP	Sim	.....	B-Li	U	4	Spic	Shel	W	Timk	Flot	8.75	42.35	Gem	34x4	36x10	M&C	.....	6500	80	37

ELECTRIC COMMERCIAL CARS

E. C. M. Name and Model Number	Carrying Capacity	Chassis Weight	Chassis Price	Maximum Speed	Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Ward WS 2	750	1500	.....	13	Opt	45	G-E	Own	4	W	Shel	Shel	32x3	32x3	Own	88	60
C-T ½	1000	1800	2075	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x3	W	89¼	60
Walker M	1000	2300	.....	15	Opt	60	West	West	5	O	Own	Math	34x3	36x3½	Ross	93	66
Atlantic 1C	2000	2770	.....	12	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x4	Ross	103	65
Ward WA	1250	2730	.....	12	Opt	45	G-E	G-E	4	W	Shel	Shel	32x3	34x3½	Own	90	60
C-T 1	2000	2500	2400	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3½	36x4	W	101	60
Lansden 1	.....	2900	.....	12	.....	50	.....	.....	.....	.....	.....	.....	36x3	36x3½	.....	.....	.....
Steinmetz	.....	.....	.....	16	Exide	.....	Own	.....	4	B	.....	.....	32x4*	32x4*	.....	Opt	.....
Walker K	2000	2700	.....	14	Opt	60	West	West	5	O	Own	Math	34x3½	36x4	Ross	96	66
Ward WB	2000	3430	.....	10	Opt	40	G-E	G-E	4	W	Shel	Shel	34x3½	36x4	Own	102	60
Atlantic 2C	4000	3590	.....	11	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x3†	Ross	115	65
C-T 2	4000	3500	2800	12	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x4	36x4†	W	116	60
Lansden 2	.....	4400	.....	11	.....	50	.....	.....	.....	.....	.....	.....	36x4	36x3	.....	.....	.....
Walker L	4000	3800	.....	13	Opt	60	West	West	5	O	Own	Math	38x4	38x6	Ross	112	66
Ward WD	4000	4500	.....	8.5	Opt	35	G-E	G-E	4	W	Shel	Shel	36x4	36x7	Own	114	60
Atlantic 3C	7000	5220	.....	10	Opt	.....	G-E	G-E	5	C	Timk	.....	36x5	40x5†	Ross	135	65
C-T 3½	7000	5000	4200	11	Opt	50	G-E	Own	4	I	Dead	Shel	36x6†	36x4†	W	122	55
Lansden 3½	.....	5700	.....	10	.....	45	.....	.....	.....	.....	.....	.....	36x5	36x4	.....	.....	.....
Ward WF	7000	6600	.....	7	Opt	30	G-E	G-E	5	W	Shel	Shel	36x5	36x8	Own	132	70
Atlantic 5C	10000	6230	.....	9	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x5†	Ross	144	65
Couple Gear H	7000	9000	4750	10	Phil	30	Own	Own	5	B	Own	Tut	36x5†	36x5†	Own	96	55
Couple Gear A	10000	10000	5250	7	Phil	30	Own	Own	5	B	Own	Tut	36x5†	36x5†	Own	96	75
C-T 5	10000	6000	4400	10	Opt	50	G-E	Own	4	I	Dead	Shel	36x7	36x5†	W	132	55
Lansden 5	.....	7500	.....	9	.....	40	.....	.....	.....	.....	.....	.....	36x6	36x5	.....	.....	.....
Walker P	7000	5600	.....	11	Opt	50	West	West	5	O	Own	Math	36x5	40x5†	Ross	131	66
Walker N	10000	6400	.....	10	Opt	50	West	West	5	O	Own	Math	36x6	40x6†	Ross	141	66
Ward WH	10000	8375	.....	6	Opt	26	G-E	G-E	5	W	Shel	Shel	36x7	40x10	Own	144	70
Atlantic 6C	13000	6940	.....	8	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x6	Ross	156	65
*Couple Gear LD	14000	11000	5900	10	Phil	30	Own	Own	5	B	Own	Tut	36x5†	36x5	Own	96	55

Manufacturers Whose Models Are Included in Specifications on Preceding Pages

Acason—Acason Motor Truck Co., Detroit, Mich.
Ace—American Motor Truck Co., Newark, Ohio.
Acme—Acme Motor Truck Co., Cadillac, Mich.
Aetna—Aetna Motors Corp. of N. Y., New York, N. Y.
Akron Multi-Truck—Thomart Motor Truck Co., Kent, Ohio.
All-American—All-American Truck Co., Chicago, Ill.
All-Power—All-Power Truck Co., Detroit, Mich.
American—American Motor Truck & Tractor Co., Portland, Conn.
Apex—Hamilton Motor Co., Grand Haven, Mich.
Armleder—O. Armleder Co., Cincinnati, Ohio.
Atco—American Truck & Trailer Corp., Kankakee, Ill.
Atlantic—Atlantic Electric Vehicle Co., Newark, N. J.
Atlas—Atlas Truck Corp., York, Pa.
Atterbury—Atterbury Motor Car Co., Buffalo, N. Y.
Autocar—Autocar Co., Ardmore, Pa.
Available—Available Truck Co., Chicago, Ill.
Avery—Avery Company, Peoria Ill.

Beck-Hawkeye—Beck-Hawkeye Motor Truck Works, Cedar Rapids, Iowa.
Bell—Iowa Motor Truck Co., Ottumwa, Ia.
Belmont—Belmont Motors Corp., Lewistown, Pa.
Bessemer—Bessemer Motor Truck Co., Grove City, Pa.
Bethlehem—Bethlehem Motor Truck Corp., Allentown, Pa.
Betz—Betz Motor Truck Co., Hammond, Ind.
Birch—Birch Motor Cars, Chicago, Ill.
Bridgeport—Bridgeport Motor Truck Co., Bridgeport, Conn.
Brinton—Brinton Motor Truck Co., Philadelphia, Pa.
Brockway—Brockway Motor Truck Co., Cortland, N. Y.

C. T.—Commercial Truck Co., Philadelphia, Pa.
Capitol—Capitol Motors Corp., Fall River, Mass.
Chevrolet—Chevrolet Motor Co. of Mich., Flint, Mich.
Chicago—Chicago Motor Truck, Inc., Chicago, Ill.
Climber—Climber Motor Corp., Little Rock, Ark.
Clydesdale—Clydesdale Motor Truck Co., Clyde, Ohio.
Collier—Collier Motor Truck Co., Bellevue, Ohio.
Columbia—Columbia Motor Truck & Trailer Co., Pontiac, Mich.
Comet—Comet Automobile Co., 156 S. Water St., Decatur, Ill.
Commerce—Commerce Motor Car Co., Detroit, Mich.
Concord—Abbot-Downing Truck & Body Co., Concord, N. H.
Cook—Cook Motors Corp., Kankakee, Ill.
Corbitt—Corbitt Motor Truck Co., Henderson, N. C.
Couple Gear—Couple Gear Electric Truck Co., Grand Rapids, Mich.
Cyclone—The Cyclone Starter & Truck Co., Greenville, S. C.

Dart—Dart Truck & Tractor Corp., Waterloo, Ia.
Day-Elder—Day-Elder Motors Corp., Newark, N. J.
Dearborn—Dearborn Truck Co., Chicago, Ill.
Defiance—Defiance Motor Truck Co., Defiance, Ohio.
Denby—Denby Motor Truck Co., Detroit, Mich.
Dependable—Dependable Truck & Tractor Co., Galesburg, Ill.
Diamond T—Diamond T Motor Car Co., Chicago, Ill.
Diehl—Diehl Motor Truck Works, Philadelphia, Pa.
Doane—Doane Motor Truck Co., San Francisco, Cal.
Dodge—Dodge Bros., Detroit, Mich.
Dorris—Dorris Motor Car Co., St. Louis, Mo.
Double Drive—Double Drive Truck Co., Chicago, Ill.
Douglas—Douglas Motors Corp., Omaha, Nebr.
Duplex—Duplex Truck Co., Lansing, Mich.
Duty—Duty Motor Co., Greenville, Ill.

Eagle—Eagle Motor Truck Corp., St. Louis, Mo.
Erie—Erie Motor Truck Mfg. Co., Erie, Pa.

F. W. D.—Four Wheel Drive Auto Co., Clintonville, Wis.
Facto—Facto Motor Trucks, Springfield, Mass.
Fageol—Fageol Motors Co., Oakland, Cal. (also Cleveland, O.)
Fargo—Fargo Motor Truck Co., Chicago, Ill.
Federal—Federal Motor Truck Co., Detroit, Mich.
Ford—Ford Motor Co., Highland Park, Mich.
Forschler—Forschler Motor Truck Mfg. Co., New Orleans, La.
Front Drive—Double Drive Truck Co., Chicago, Ill.
Fulton—Fulton Motors Corp., New York, N. Y.

G. M. C.—General Motors Truck Co., Pontiac, Mich.
G. W. W.—Wilson Truck Mfg. Co., Henderson, Ia.
Garford—Garford Motor Truck Co., Lima, Ohio.
Gary—Gary Motor Truck Co., Gary, Ind.
Gersix—Gersix Mfg. Co., Seattle, Wash.
Giant—Giant Truck Corp., Chicago Heights, Ill.
Graham—Graham Brothers, Evansville, Ind.
Gramm-Bernstein—Gramm-Bernstein Motor Truck Co., Lima, Ohio.

Hahn—Hahn Motor Truck & Wagon Co., Hamburg, Pa.
Hal-Fur—Hal-Fur Motor Truck Co., Cleveland, Ohio.
Hall—Lewis-Hall Motors Corp., Detroit, Mich.
Harvey—Harvey Motor Truck Co., Harvey, Ill.
Hawkeye—Hawkeye Truck Co., Sioux City, Ia.
Hendrickson—Hendrickson Motor Truck Co., Chicago, Ill.
Hewitt-Ludlow—Hewitt-Ludlow Auto Co., Inc., San Francisco, Cal.
Highway-Knight—Highway Motors Co., Chicago, Ill.
Higrade—Higrade Motors Co., Harbor Springs, Mich.
H & M—H & M Motor Truck Co., Inc., Baltimore, Md.
Hoover—Hoover Wagon Co., York, Pa.
H. R. L.—H. R. L. Motor Co., Seattle, Wash.
Huffman—Huffman Bros. Co., Elkhart, Ind.
Hurlburt—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.

Independent—Independent Motor Co., Youngstown, O.
Independent—Independent Motor Truck Co., Inc., Davenport, Ia.
Indiana—Indiana Truck Corp., Marion, Ind.
International—International Harvester Co., Chicago, Ill.

Jackson—Jackson Motors Corp., Jackson, Mich.
J and J—The Lorain Motor Truck Co., Lorain, O.
Jumbo—Nelson Motor Truck Co., Saginaw, Mich.

Kalamazoo—Kalamazoo Motor Corp., Kalamazoo, Mich.
Kankakee—Kankakee Automobile Co., Kankakee, Ill.
Karavan—Caravan Motors Co., Portland, Ore.
Kearns—Kearns-Dughie Motors Co., Danville, Pa.
Kelly-Springfield—Hare's Motors, Inc., New York, N. Y.
Keystone—Keystone Motor Truck Corp., Philadelphia, Pa.
Kimball—Kimball Motor Truck Co., Los Angeles, Cal.
King Zeitler—King Zeitler Co., Chicago, Ill.
Kissel—Kissel Motor Car Co., Hartford, Wis.
Kleiber—Kleiber & Co., Inc., San Francisco, Cal.
Koehler—H. J. Koehler Motors Corp., Bloomfield, N. J.
Kuhn—Kuhn Tractor Truck Co., Seattle, Wash.

Lange—Lange Motor Truck Co., Pittsburgh, Pa.
Larrabee-Deyo—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.
L. M. C.—Louisiana Motor Car Co., Shreveport, La.
Lombard—Lombard Auto Tractor Truck Corp., New York, N. Y.
Lone Star—Lone Star Truck & Tractor Assn., San Antonio, Texas.
Luedinghaus—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.
Luverne—Luverne Automobile Co., Luverne, Minn.

Maccar—Maccar Truck Co., Scranton, Pa.
MacDonald—MacDonald Truck & Tractor Co., San Francisco, Cal.
Mack—International Motor Co., New York, N. Y.
Marshall—Marshall Mfg. Co., Chicago, Ill.
Master—Master Trucks, Inc., Chicago, Ill.
Maxwell—Maxwell Motor Co., Inc., Detroit, Mich.
Menominee—Menominee Motor Truck Co., Menominee, Mich.
Moline—Moline Plow Co., Moline, Ill.
Moreland—Moreland Motor Truck Co., Los Angeles, Cal.
Mutual—Mutual Truck Co., Sullivan, Ind.

Napoleon—Napoleon Motors Co., Traverse City, Mich.
Nash—Nash Motors Co., Kenosha, Wis.
Nelson-LeMoon—Nelson & LeMoon, Chicago, Ill.
Netco—New England Truck Co., Fitchburg, Mass.
Niles—Niles Motor Truck Co., Pittsburgh, Pa.
Noble—Noble Motor Truck Co., Kendallville, Ind.
Northway—Northway Motors Co., Natick, Mass.
Northwestern—Starr Carriage Co., Seattle, Wash.
Norwalk—Norwalk Motor Car Co., Martinsburg, W. Va.
O. K.—Oklahoma Auto Mfg. Co., North Muskogee, Okla.
Ogden—Ogden Motor Truck Co., Chicago, Ill.
Old Hickory—Kentucky Wagon Mfg. Co., Louisville, Ky.
Old Reliable—Old Reliable Motor Truck Co., Chicago, Ill.
Oldsmobile—Olds Motor Works, Lansing, Mich.
Oneida—Oneida Motor Truck Co., Green Bay, Wis.
Orleans—New Orleans Motor Truck Mfg. Co., New Orleans, La.
Oshkosh—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.

Packard—Packard Motor Car Co., Detroit, Mich.
Paige—Paige-Detroit Motor Car Co., Detroit,, Mich.
Parker—Parker Motor Truck Co., Milwaukee, Wis.
Patriot—Patriot Motors Co., Lincoln, Neb.
Pierce-Arrow—Pierce-Arrow Motor Car Co., Buffalo, N. Y..
Pioneer—Pioneer Truck Co., Chicago, Ill.
Pittsburgher—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.
Power—Power Truck & Tractor Co., Detroit, Mich.
Premocar—Preston Motors Corp., Birmingham, Ala.

Rainier—Rainier Motor Corp., Flushing, L. I., N. Y.
Reliance—Reliance Motor Truck Co., Appleton, Wis.
Reo—Reo Motor Car Co., Lansing, Mich.
Republic—Republic Motor Truck Co., Inc., Alma, Mich.
Reynolds—Reynolds Motor Truck Co., Mt. Clemens, Mich.
Riker—Locomobile Co. of America, Bridgeport, Conn.
Rowe—Rowe Motor Mfg. Co., Lancaster, Pa.
Royal—Royal Motor Truck of N. Y., New York, N. Y.
Rumely—Advance-Rumely Thresher Co., Inc., La Porte, Ind.

Sandow—Sandow Motor Truck Co., Chicago, Ill.
Sanford—Sanford Motor Truck Co., Syracuse, N. Y.
Schacht—G. A. Schacht Motor Truck Co., Cincinnati, O.
Schwartz—Schwartz Motor Truck Co., Reading, Pa.
Selden—Selden Truck Corp., Rochester, N. Y.
Seneca—Seneca Motor Car Co., Fostoria, O.
Service—Service Motor Truck Co., Wabash, Ind.
Shaw—Walden W. Shaw Livery Co., Chicago, Ill.
Signal—Signal Motor Truck Co., Detroit, Mich.
Southern—Southern Truck & Car Corp., Greenboro, N. C.
Standard—Standard Motor Truck Co., Detroit, Mich.
Steinmetz—Steinmetz Electric Motor Car Corp., Baltimore, Md.
Sterling—Sterling Motor Truck Co., Milwaukee, Wis.
Stewart—Stewart Motor Corp., Buffalo, N. Y.
Stoughton—Stoughton Wagon Co., Stoughton, Wis.
Success—Webberville Truck Co., Webberville, Mich.
Sullivan—Sullivan Motor Truck Co., Rochester, N. Y.
Super Truck—OConnell Motor Truck Co., Waukegan, Ill.
Superior—Superior Motor Truck Co., Atlanta, Ga.

Texan—Texas Motor Car Asso., Fort Worth, Texas.
Tiffin—Tiffin Wagon Co., Tiffin, Ohio.
Titan—Titan Truck Co., Milwaukee, Wis.
Tower—Tower Motor Truck Co., Greenville, Mich.
Traffic—Traffic Motor Truck Corp., St. Louis, Mo.
Transport—Transport Truck Co., Mt. Pleasant, Mich. .
Traylor—Traylor Eng. & Mfg. Co., Cornwells, Pa.
Triangle—Triangle Motor Truck Co., St. Johns, Mich.
Triumph—Triumph Truck & Tractor Co., Kansas City, Mo.
Twin City F. W. D.—Twin City Four Wheel Drive Co., Inc., St. Paul, Minn.
Twin City—Minneapolis Steel & Mach. Co., Minneapolis, Minn.

Ultimate—Vreeland Motor Co., Inc., Newark, N. J.
Union—Union Motor Truck Co., Bay City, Mich.
United—United Motors Co., Grand Rapids, Mich.
U. S.—United States Motor Truck Co., Cincinnati, Ohio.

Velie—Velie Motors Corp., Moline, Ill.
Vim—Vim Motor Truck Co., Philadelphia, Pa.

Walker—Walker Vehicle Co., Chicago, Ill.
Walker-Johnson—Walker-Johnson Truck Co., Woburn, Mass.
Walter—Walter Motor Truck Co., New York, N. Y.
Ward—Ward Motor Vehicle Co., Mt. Vernon, N. Y.
Ward La France—Ward La France Truck Co., Inc., Elmira, N Y.
Watson—Watson Wagon Co., Canastota, N. Y. .
Wells—Evans Truck & Axle Co., Auburn, Ind.
White—White Co., Cleveland, Ohio.
White Hickory—White Hickory Motor Corp., Atlanta, Ga.
Wichita—Wichita Falls Motor Co., Wichita Falls, Tex.
Wilcox—H. E. Wilcox Motor Co., Minneapolis, Minn.
Wilson—J. C. Wilson Co., Detroit, Mich.
Winther—Winther Motor Truck Co., Kenosha, Wis.
Witt-Will—Witt-Will Co., Inc., Washington, D. C.
Wolverine—American Commercial Car Co., Detroit, Mich.

Yale—Yale Motor Truck Co., New Haven, Conn.

Activities of the Motor Truck Association of Philadelphia

OFFICERS

W. Y. ANTHONY, President
CHARLES J. SWAIN, Vice President
W. H. METCALF, Sec'y, 328 N. Broad Street
W. R. WALTON, Treasurer

BOARD OF GOVERNORS

T. K. QUIRK **J. D. HOWLEY** **F. P. GAUL**
F. A. KISSEL **H. A. NEILL**

THE COMMERCIAL CAR JOURNAL OFFICIAL ORGAN

THE last meeting of the association, which was held in the Gold Room of the Adelphia Hotel, was the largest and probably the best in several months. It was presided over by Charles J. Swain, vice-president, in the absence of Wallace Y. Anthony, president, who, it is rumored, is "on his honeymoon."

Secretary W. H. Metcalf, substituting for Thomas K. Quirk, chairman of the legislative committee, reported that eleven bills affecting motor truck licensing laws had been carefully reviewed at a meeting of the committee. This conscientious committee is constantly on the alert and will immediately take issue upon the slightest indication of legislative encroachment on the interests of the trade. Delegates from other associations in this city and other cities within the state were present at the meeting of the committee.

J. A. Yeomans, of Cleveland, Ohio, was the speaker of the evening. He preached the gospel of the square deal to the members and guests of the association. The keynote of his speech was Americanism and more production and less selfishness on the part of both employer and employe.

He was introduced by Mr. Swain as having addressed in the last few years 1800 organizations of manufacturers and more than 200 civic bodies. The speaker announced that he would deliver his "shop address."

Just before beginning his "shop address," Mr. Yeomans declared that factory executives generally appeared to have neglected their one best bet—that of selling themselves to the men who made their product possible, the workmen in the plants.

"Men," he began, "ours is known as the greatest producing country in the world, and we are proud of it. Yet, since the war, there has been something wrong. What is the matter in the factories that there are so many idle machines? I would say that nine times out of every ten, the trouble is either none or underproduction. That is where the trouble lies. We are not producing goods in this country today as we should. We are trying to get by with substitutes—even substitutes for work. There never can be any remedy till we give an honest day's work for an honest day's pay.

"The only figures to be depended upon in a square deal between employer and employe are 'fifty-fifty.'" He deplored "collective greed," whether of employer or employe. and cited the instance of the selfishness of 42,000 miners refusing to produce coal through a strike, causing untold suffering to thousands, of the selfishness of employers refusing to yield an inch or see a middle course in the struggle, and of the holding up of motor truck production all over the country, causing hunger, through railroad strikes.

Highway Volume is Off Press

An addition to the records of historic development of the country is the volume just produced by Robert Bruce, of Philadelphia, entitled "The Lincoln Highway in Pennsylvania." As a result of study and investigation, Mr. Bruce has compiled a complete description of the present Lincoln Highway across Pennsylvania together with a detailed account of many historic occurrences at numerous points located upon the Lincoln Highway in that state. Starting with the opening of the original road across the Allegheny Mountains, by General John Forbes in 1758, and running down to the present time, the volume cites numerous developments of the Revolutionary War, the Indian wars and the colonial period, the Civil War, and later happenings.

Taken From Current House Organs

Sell Yourself on Your Product

A salesman reporting for work with an automobile concern asked the general manager the first thing he should do. "Sell yourself," was the laconic reply.

Before a salesman can sell others, he must be sold himself. In order to give his utmost to a proposition, he must know all about his product. He must be sold so thoroughly that he knows every advantage and limitation of his goods.

He must study the utility of his article, what relation it has to similar products. Its points of superiority and why it is superior. The materials used and why they are used. The process necessary to build his product and the many operations necessary to its production. He can study it from a hundred angles, and the surprising point of this constant study is that it brings up new angles from which he can further his studies.

The automobile salesman is especially blessed with opportunities to study his product. The advertising and publicity departments are constantly releasing data and information that he can utilize. Instruction books and parts books yield a surprisingly large amount of information when studied properly. Every salesman is in constant touch with owners that express their preference or dislike for some particular part of their product. The salesman who avails himself of every bit of information he can grasp that will tell him more about the car he is selling, is on the right track to acquiring the necessary knowledge that will enable him not only to sell himself but his prospect as well.—*The Oakland Sales News,* Oakland Motor Car Co., Pontiac, Mich.

Don't Throw Mud

Automotives of all classes know not the life of the tax-free; many such taxes are considered unmitigated nuisances. Mitigated or unmitigated there is one law of which all self respecting, peace abiding and harmony loving citizens would approve, whether it be automobilists, truck owner or pedestrian, namely—"Mud Throwers' Doom" Act. Things have come to a terrible pass when one is scared to cross the street, talk to a friend by the side of the road, or to wait for a street car for fear of being splashed from head to feet due to the inconsideration of some nonsensical, dumbheaded truck driver. True, the price of clothing is "coming down" but after a splash of slush, clothing invariably "comes off"—for a time at least. Road rogues of automobiles and motor trucks are as objectionable to other considerate automotivists as lounge lizards are to men. Highway courtesy is every whit as important as real retail service. The name on the side of a truck is never clearer than at a glance by an irate pedestrian after a splash bath. It pays to advertise—but don't throw mud! *Haul-Age,* Garford Motor Truck Co., Lima, O.

Present Road Condition in United States

The following information discloses the serious lack of roads and highway improvement in this country.

Total road mileage (outside of cities and towns)—2,500,000.

Road mileage in U. S. per square mile area—.739.

Road mileage in England per square mile area—2.57.

Road mileage in France per square mile area—1.75.

About $1,026,895,529 was proposed and voted by various states for highway construction up to March 1, 1920.

This is the high water mark in the history of this country's highway building, 1918 having been the largest previous year, with approximately $350,000,000 voted.

Of the 2,500,000 miles of highways in the United States, outside of cities and towns, only approximately 12 per cent can be classified as improved.

Today 20 per cent of the roads (500,000 miles) carry 80 per cent of the traffic, while only about ¼ of 1 per cent of the total mileage is suitable for heavy motor truck traffic.—*Republic Round Table,* Republic Truck Sales Corp., Alma, Mich.

Truck Education for Owners

Owners unquestionably need education along this line. No motor truck has ever been built that can withstand severe abuses without sooner or later showing ill effects and the percentage of cases where trouble can be traced directly to improper care or attention on the part of the truck owner is very large.

Yet the owner is not always to blame. It must be remembered that he is not ordinarily a mechanic, and aside from the mere operation of his truck, knows comparatively little about it. His apparent carelessness may, therefore, be due to lack of knowledge which should have been supplied by the dealer.

The more thoroughly posted the owner is in the matter of caring for his truck the better service he will enjoy and the greater his satisfaction with his investment.

Wise, therefore, is the dealer who takes pains to see that every man who purchases a truck of him is put in possession of all information that will tend to lengthen the life and better the service of that truck. — *Transport Headlight,* Transport Motor Co., Mt. Pleasant, Mich.

According to Hoyle for Salesmen

1—Remember good salesmanship eliminates poor collections.

2—Set yourself a quota—then beat it.

3—Treat the buyer as a brother—but not a long-lost one.

4—Don't insinuate the buyer is a silly ass by knocking the goods he bought from a competitive house.

5—Save some of your ammunition. You can't close on concussion.

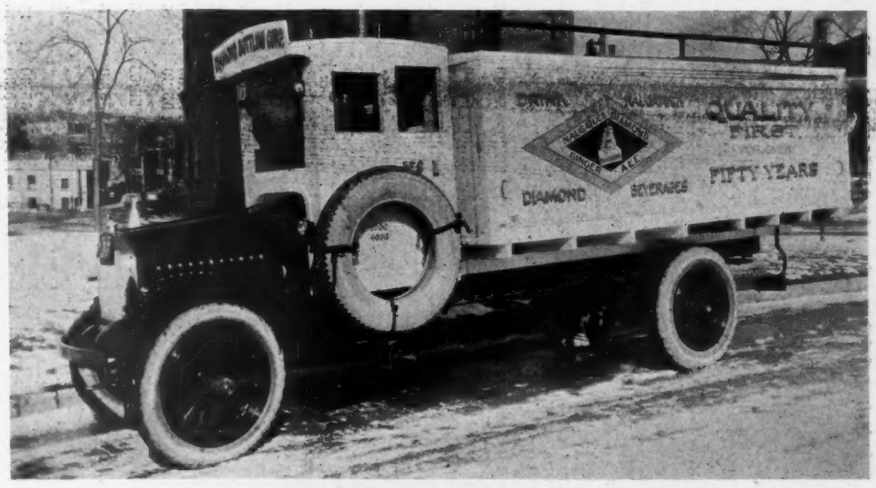
6—The price won't worry you if you are sold on the goods.

7—Religion is fine and politics necessary—but not in selling.

8—If you knew more than your Sales Manager he'd be working for you.

9—"One call" salesmanship is just what it means.

10—Don't trip over a side line.—Salesology.—*Milwaukee Tank News,* Milwaukee Tank Works, Milwaukee, Wis.



Neatness Combined With Ready Access to the Interior Were the Two Main Considerations in the Construction of this Body

It was specially built by the Waterbury Body Co., Thomaston, Conn., for a bottling concern in Waterbury, Conn. Two large sliding doors, which slide in either direction, one on each side of the body, and two doors in the rear of the body are provided. To facilitate loading and unloading four easily opened doors are arranged in the top. In addition to the regular load carried within the body empty cases can be carried on the top. They are prevented from working off the top, through the vibration of travel, by an iron rail that follows the perimeter of the top. This body is 13 ft. 6 in. long, 6 ft. 6 in. wide and 4 ft. high. The type and style of this body is such as not only to render it convenient for the driver in various respects, but it also serves as an attractive advertisement for the concern operating it.

Price List of Truck Pneumatic Tire Casings, With Capacities and Inflation Pressures of Larger Sizes

	30 3½	32 4	34 4	32 4½	34 4½	33 5	35 5	36 x 6			38 x 7			40 x 8			42 x 9			44 x 10		
								Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure
Ajax Rubber Co., Inc., New York, N. Y.																						
Ajax Cord non-skid	34.30	52.30	55.30	59.15	62.05	73.65	77.35	110.40	2200	90	156.15	3000	100	201.15	4000	100	.....	....	...	.....	....	...
American Rubber & Tire Co., Akron, O.																						
Americord, non-skid	30.50	54.90	58.00	62.10	65.10	77.30	81.20	117.75	2300	90	166.00	3100	100	213.85	4100	110	.....	....	...	.....	....	...
Baltimore Rubber Tire Mfg. Co., Baltimore, Md.																						
Box Tread, non-skid	29.39	41.88	44.65	.....	52.32	.....	68.42	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Atlantic, non-skid	23.20	36.80	39.60	.....	.....	.....	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Bergougnan Rubber Corp., Trenton, N. J.																						
Bergougnan Cord, non-skid	35.65	57.50	61.75	66.25	69.25	81.75	85.00	133.00	2000	90	179.00	2700	100	225.00	650	110	.....	....	...	.....	....	...
Brictson Mfg. Co., Omaha, Neb.																						
Brictson P. P. Studded	42.85	65.15	69.45	77.85	85.40	.....	106.50	225.50	3000	100	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Braender Rubber & Tire Co., Rutherford, N. J.																						
Braender Super Cord, non-skid	37.00	52.30	55.30	59.15	62.05	73.65	77.35	110.40	2200	90	156.15	3000	100	201.15	4000	110	.....	....	...	.....	....	...
Brunswick-Balke-Collender Co., Chicago, Ill.																						
Brunswick-Cord, non-skid	32.50	52.30	55.30	59.15	62.05	73.65	77.35	110.40	2200	90	156.15	3000	100	201.15	4000	110	.....	....	...	.....	....	...
Columbia Tire & Rubber Co., Mansfield, O.																						
Columbia Fabric	20.00	33.65	36.10	.....	.....	.....	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Columbia, non-skid	31.15	52.30	55.30	59.15	62.05	73.65	77.35	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Curtis Tire & Rubber Co., Muskegon, Mich.																						
Curtis Cord, road	.....	.....	.....	.....	.....	.....	.....	119.35	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Empire Tire & Rubber Co., Trenton, N. J.																						
Empire Cord, non-skid	31.15	52.30	55.30	59.15	62.05	73.65	77.35	119.35	2000	90	168.80	2700	100	217.45	3650	110	.....	....	...	.....	....	...
Erie Tire & Rubber Co., Sandusky, O.																						
Erie, non-skid	.....	.....	.....	.....	.....	.....	85.60	118.00	3300	120	167.00	4200	130	215.00	5100	140	.....	....	...	.....	....	...
Falls Rubber Co., Cuyahoga Falls, O.																						
Falls Cord, Neverslip Cord	31.15	.....	55.30	59.15	62.05	73.65	77.35	123.00	2200	90	163.00	3000	100	225.00	4000	110	.....	....	...	.....	....	..
Federal Rubber Co. of Ill., Cudahy, Wis.																						
Federal Cord, non-skid	.....	58.75	61.95	66.20	69.75	82.75	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Federal H. D. Cord Cross Bar Rugged	.....	.....	.....	.....	.....	.....	87.50	121.05	2300	100	171.05	3000	110	220.40	000	120	.....	....	...	.....	....	...
Firestone Tire & Rubber Co., Akron, O.																						
Firestone Cord, non-skid	31.45	52.80	55.85	59.75	62.65	74.40	78.10	118.50	2200	90	167.85	3000	100	216.25	4000	110	.....	....	...	.....	....	...
Fisk Rubber Co., Chicopee Falls, Mass.																						
Fisk Red Top	20.80	34.95	37.55	46.80	49.85	.....	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Fisk Cord, non-skid	34.25	52.30	55.30	59.15	62.05	73.65	77.35	110.50	2200	90	156.50	3000	100	201.50	4000	110	.....	....	...	.....	....	...
General Tire & Rubber Co., Akron, O.																						
General Cord, non-skid	32.50	56.40	58.65	64.75	67.95	80.40	82.05	117.75	2200	90	162.95	3000	100	209.85	4000	110	298.65	5000	120	417.45	6000	130
Gillette Rubber Co., Eau Claire, Wis.																						
Gillett Safety Tread Cords	31.15	52.30	55.30	59.15	62.05	73.65	77.35	110.40	2200	90	156.15	3000	100	201.15	4000	110	.....	....	...	.....	....	...
Goodrich, B. F., Rubber Co., Akron, O.																						
Goodrich Cord, ribbed	.....	.....	.....	.....	.....	.....	.....	119.35	2200	90	168.80	3000	100	217.45	4000	110	.....	....	...	.....	....	...
Goodrich Cord, Safety	.....	.....	.....	.....	.....	.....	.....	119.35	2200	90	168.80	3000	100	217.45	4000	110	.....	....	...	.....	....	...
Goodyear Tire & Rubber Co., Akron, O.																						
Goodyear Cord, ribbed	.....	.....	55.30	59.15	62.05	73.65	77.35	119.35	2200	100	168.80	3000	110	217.45	4000	120	.....	....	...	.....	....	...
Goodyear Cord, All Weather	.....	.....	55.30	59.15	62.05	73.65	77.35	119.35	2200	100	168.80	3000	110	217.45	000	120	272.35	5000	130	380.65	6000	140
Gordon Tire & Rubber Co., Canton, O.																						
Gordon, non-skid, Triangle Cord	28.40	52.90	55.10	62.90	68.30	77.30	81.20	126.00	2100	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Hewitt Rubber Co., Buffalo, N. Y.																						
Hewitt Cord, non-skid	35.85	58.10	61.40	65.70	68.90	81.85	85.90	122.75	2000	90	174.00	2850	100	.....	....	...	.....	....	...	.....	....	...
Howe Rubber Co., Inc., New Brunswick, N. J.																						
Howe Ultra Cord, non-skid	.....	.....	.....	.....	.....	.....	.....	119.35	2000	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
India Tire & Rubber Co., Akron, O.																						
India Cord, non-skid	35.95	61.60	65.00	69.40	73.15	86.65	90.90	126.75	2200	90	180.00	3000	100	229.85	4000	110	.....	....	...	.....	....	...
International India Rubber Corp., S. Bend, Ind																						
Odell Cord, non-skid	28.50	40.25	43.75	51.85	54.95	.....	62.95	119.35	2000	90	168.80	27.00	100	.....	...	....	.....	...	....	.....	...	....
Kelly-Springfield Tire Co., New York, N. Y.																						
Kelly-Springfield Cord, grooved	.....	53.75	56.25	62.75	66.00	77.50	81.00	133.00	2000	90	179.00	3000	100	225.00	4000	110	.....	....	...	.....	....	...
Kelly-Springfield Cord, B. B.	.....	57.50	61.75	66.25	69.25	81.75	85.00	133.50	2000	90	179.00	3000	100	225.00	4000	110	.....	....	...	.....	....	...
Lee Tire & Rubber Co., New York, N. Y.																						
Lee P. P., non-skid	.....	.....	.....	71.00	74.45	84.70	88.95	132.50	1970	90	187.40	2720	100	241.40	3595	110	.....	....	...	.....	....	...
Long Wear Tire & Rubber Co., Anderson, Ind.																						
Long Wear, non-skid	.....	55.00	56.10	60.50	64.10	.....	79.55	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
McCreary Tire & Rubber Co., Indiana, Pa.																						
McCreary Fabric, non-skid	23.30	35.20	38.85	49.40	51.45	.....	65.15	.....	....	...	.....	....	...	.....	...	...	.....	....	...	.....	....	...
McCreary Cord, non-skid	33.25	52.10	56.20	73.10	79.00	86.70	91.65	.....	....	...	.....	....	...	.....	...	...	.....	....	...	.....	....	...
McGraw Tire & Rubber Co., Cleveland, O.																						
McGraw Cord, ribbed	27.35	49.70	52.55	56.20	58.95	69.95	73.50	110.40	2000	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
McGraw Cord, non-skid	28.80	52.30	55.30	59.15	62.05	73.65	77.35	110.40	2000	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Madison Tire & Rubber Co., New York, N. Y.																						
Madison Fabric, non-skid	21.70	35.65	38.25	47.70	50.80	.....	62.30	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Madison Cord, non-skid	37.00	55.45	58.60	62.70	65.75	78.05	82.00	117.00	2000	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Manhattan Tire & Rubber Co., Mansfield, O.																						
Manhattan Fabric																						

Manhattan Tire & Rubber Co., Mansfield, O.																						
Manhattan Fabric	20.00	33.65	36.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manhattan Cord	31.15	52.30	55.30	59.15	62.05	73.65	77.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marathon Tire & Rubber Co., Cuyahoga Falls, O.																						
Marathon Cord, Angle	32.50	52.30	55.30	59.15	62.05	73.65	77.35	119.35	2200	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mason Tire & Rubber Co., Kent, O.																						
Mason Cord, non-skid	33.75	52.20	54.00	58.90	62.10	74.70	77.20	107.40	2200	90	151.90	3000	100	195.70	3750	110	.....	.....	.....	.....	.....	.....
Meyer Rubber Co., Columbiana, O.																						
Meyer, ribbed	20.00	33.65	36.10	45.00	47.95	.....	58.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Michelin Tire Co., Milltown, N. J.																						
Michelin Fabric	20.00	33.50	36.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Michelin Cord	.....	51.50	54.90	58.95	61.50	72.15	75.85	111.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miller-Anderson Rubber Works, Anderson, Ind.																						
Double-Anchored Cord	28.12	46.06	49.81	54.37	57.50	70.08	72.68	132.80	2200	90	146.40	3000	100	193.55	4000	110	245.20	5000	120	342.65	6000	130
Miller Rubber Co., Akron, O.																						
Miller Cord, "Geared-to-the-Road"	32.00	52.35	55.25	59.20	61.95	73.70	77.40	119.35	2200	100	168.85	3000	110	217.50	4000	120	272.25	5000	130	380.75	6000	140
Mohawk Rubber Co., Akron, O.																						
Mohawk Cord, non-skid	38.85	61.85	65.05	70.95	74.30	83.95	89.00	125.80	2200	90	175.75	3000	100	222.00	4000	110	.....	.....	.....	.....	.....	.....
Monarch Rubber Co., Hartville, O.																						
Monarch Cord, non-skid	34.25	52.30	55.30	59.15	62.05	73.65	77.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National Tire & Rubber Co., E. Palestine, O.																						
Roamer & Olympian Fabric, non-skid	20.60	34.70	37.20	.....	49.45	.....	60.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Roamer & Olympian Cord, non-skid	.....	53.85	.....	.....	63.95	.....	79.70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska Tire & Rubber Co., Omaha, Neb.																						
Cornhusker	20.00	33.65	36.10	45.00	47.95	.....	58.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norwalk Tire & Rubber Co., Norwalk, Conn.																						
Norwalk Cord, non-skid	32.65	54.90	58.05	62.10	65.15	77.35	81.20	115.90	2000	90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oldfield Tire Co., Cleveland, O.																						
Oldfield Cord, anti-skid	.....	.....	.....	.....	.....	.....	.....	125.30	2200	90	177.25	3000	100	228.30	3725	110	.....	.....	.....	.....	.....	.....
Para Bell Tire & Rubber Co., Mansfield, O.																						
Para Bell, Fabric	20.00	33.65	36.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Para Bell, Cord	35.75	52.30	55.30	59.15	62.05	73.65	77.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania Rubber Co., Jeannette, Pa.																						
Vacuum Cup, Cord	37.05	52.30	55.30	59.15	62.05	73.65	77.35	104.90	2200	90	148.35	3000	100	191.10	4000	110	.....	.....	.....	.....	.....	.....
Perfection Tire & Rubber Co., Fort Madison, Ia.																						
Perfection, non-skid	.....	53.30	56.25	60.10	63.35	75.05	78.75	113.10	2200	90	159.90	3000	100	205.20	4000	110	.....	.....	.....	.....	.....	.....
Pharis Tire & Rubber Co., Newark, O.																						
Pharis, non-skid	20.00	33.65	36.10	.....	47.95	.....	58.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quaker City Rubber Co., Philadelphia, Pa.																						
Quaker Fabric, T. T. T.	22.00	36.45	38.95	47.80	50.85	57.60	64.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T. T. T., Cord	35.70	57.65	60.95	65.20	68.40	81.20	85.25	121.80	2200	90	172.55	3000	100	.....	.....	.....	.....	.....	.....	.....	.....	.....
Racine Auto Tire Co., Racine, Wis.																						
Horseshoe Cord, non-skid	32.70	54.90	58.05	62.10	65.15	77.35	81.20	117.00	2200	120	165.00	3000	130	213.00	4000	140	.....	.....	.....	.....	.....	.....
Ribbed Tread	.....	54.90	58.05	.....	65.15	.....	81.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Racine Rubber Co., Racine, Wis.																						
Racine Multi-Mile, Cord	.....	.....	.....	.....	.....	.....	.....	110.40	2200	90	156.15	3000	100	201.15	4000	110	.....	.....	.....	.....	.....	.....
Republic Rubber Co., Youngstown, O.																						
Republic Grande Cord, Staggard Tread	34.70	52.30	55.30	59.15	62.05	73.65	77.35	119.35	2200	90	168.80	3000	100	217.45	4000	110	.....	.....	.....	.....	.....	.....
Spreckels Savage Tire Co., San Diego, Cal.																						
Savage Cord	.....	.....	.....	.....	.....	.....	.....	126.00	1900	115	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard Tire Co., Willoughby, O.																						
Tiger Foot, non-skid	.....	.....	.....	.....	.....	.....	.....	119.35	2200	90	168.80	3000	100	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stanwood Rubber Co., Inc., Elizabeth, N. J.																						
Stanwood, Whippet Tread Cord	37.50	60.50	62.50	67.00	73.00	85.00	87.75	129.00	2200	90	183.00	2300	100	235.00	4000	110	.....	.....	.....	.....	.....	.....
Stanwood Whippet Tread Fabric	26.85	42.25	45.40	54.60	57.80	69.40	71.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Star Rubber Co., Akron, O.																						
Star Cord, All Star	34.25	54.00	57.00	65.90	69.50	76.50	80.50	113.00	2200	90	160.50	3000	100	.....	.....	.....	.....	.....	.....	.....	.....	.....
Meteor Cord, non-skid	.....	55.30	58.40	67.40	71.10	78.50	82.50	116.00	2200	90	163.80	3000	100	213.00	4000	110	.....	.....	.....	.....	.....	.....
Swinehart Tire & Rubber Co., Akron, O.																						
Swinehart Cord, Hexagon	.....	53.75	56.60	60.50	63.70	75.50	79.25	114.80	2000	90	162.40	3000	120	.....	.....	.....	.....	.....	.....	.....	.....	.....
Syracuse Rubber Co., Inc., Syracuse, N. Y.																						
Syra-Cord, non-skid,	31.95	53.75	56.70	60.65	63.60	75.70	79.30	119.35	2200	90	168.75	3000	100	216.60	4000	110	.....	.....	.....	.....	.....	.....
Trent Rubber Co., Trenton, N. J.																						
Trent Fabric, non-skid	23.95	36.20	39.45	46.90	49.60	60.35	64.85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Trent Cord, non-skid	35.05	52.30	56.30	62.60	66.70	77.00	82.70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tropical Tire & Rubber Co., New York, N. Y.																						
Tropical Fabric, non-skid	22.90	37.35	39.90	49.90	53.20	61.55	64.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tropical Cord, non-skid	33.85	56.45	59.55	63.60	67.00	79.50	83.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tyer Rubber Co., Andover, Mass.																						
Tyrian Fabric, non-skid	20.55	33.65	.....	45.00	47.95	.....	58.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tyrian Cord, non-skid	.....	52.35	55.30	.....	62.05	.....	77.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
United States Tire Co., New York, N. Y.																						
U. S. Nobby Cord, non-skid	.....	.....	.....	.....	68.30	.....	84.90	110.40	200	90	156.15	3000	100	201.15	4000	110	251.90	5000	120	352.10	6000	130

Truck Salesman Digs Up Business for Prospects

Alert Transport Representative Has Fruitful Method of Increasing His Sales. Motor Also Puts Men Into Business for Themselves

THERE'S plenty of truck business right now—if you know how to go out and get it."

This is an expression you may have heard among the optimistic wise ones; but they do not always tell you how to go and get it.

M. K. Gorham, a star salesman for the Battle Automobile Co., distributor of Transport trucks for Central and Northern Michigan, is one of those to whom a quiet period in truck business is only a challenge to his resourcefulness. If truck prospects are few, the problem is simply to make more truck prospects. If prospects are apathetic, the job is to make them enthusiastic.

On the first part of the proposition—making more truck prospects—Mr. Gorham says:

"Hauling is one thing that goes right on through every period—in city and country. Where there is hauling there is need for trucks. The salesman that does not know that truck hauling is more economical, more efficient and more profitable than horse hauling in 90 per cent of cases, ought not to be in the truck business.

"Yet motor hauling has just begun. Not until 90 per cent of all hauling is done by motor trucks can any salesman say truthfully that the field is covered.

"This suggested to me that now is a very good time to interest men in motor haulage as a business of their own. You can find men who are not satisfied with the business they have or are tired of working for somebody else. Locate the right kind of men who are in these moods, and you have capital prospects.

"Often it is necessary to point out to them where they can get the trucking business. A little study of the local situation gives one a line on this; but the salesman should be definite. The prospect wants to know where and what the business is.

"This argument works out just as well with men who are already engaged in hauling business with horses."

Mr. Gorham gave a striking instance of this in Reed City, Mich.

"Ernest Johnson, the transfer man, was a very difficult proposition so far as trucks were concerned. Several attempts to sell trucks to him had been fruitless."

But Mr. Gorham undismayed held another long session with him. Finally Mr. Johnson exclaimed:

"Tell me where I can get enough hauling to make it profitable for me to own a truck, and I'll buy one."

"Very well, be at the hotel tonight at eight o'clock," answered Gorham.

The salesman had at that time no definite plan of action for lining up hauling jobs, but he began immediately. One interesting bit of information was that there was some difficulty in transporting farm produce from Luther, a nearby town, to Peacock, 13 miles distant, owing to the fact that the railway had been taken out.

Calling on the people interested, Gorham ascertained that motor truck service between these cities would be most welcome and that the pay would make the job worth while.

On further investigation he found a job of moving five carloads of bricks, another hauling three thousand yards of gravel for road construction work and still another transporting a large quantity of lumber.

When he met the transfer man at the hotel that night, Gorham presented an array of facts and figures which convinced the prospect that, conservatively estimated, one of his trucks, a 2½-ton Transport, could be made to earn him an average of approximately $15 a day, net. Realizing, of course, that he could ill afford to ignore such alluring prospects for the expansion of his business, Johnson decided to invest.

Results of this venture more than came up to the picture painted by the salesman. The truck paid for itself in little more than six months, and at last reports Johnson's business had increased to such proportions that he expects soon to add another truck.

Here is an instance of a man who, like many others, needed a truck and didn't realize it until the matter was brought forcibly to his attention. True, there was no demand for a truck to handle the limited hauling he had been doing by team, but he was overlooking a big opportunity and it required the suggestion of a wide-awake salesman to open his eyes to the possibilities that really existed.

Men the country over, by means of a motor truck, have established themselves in permanent, profitable businesses, and this with comparatively small investments. Many a man has found here just the opportunity he has been seeking.

There is no question that educational salesmanship can accomplish much during the next few months to maintain a profitable volume of business. Even with a general improvement in conditions, we cannot expect to skim along as in other days, picking off only what appears on the surface.

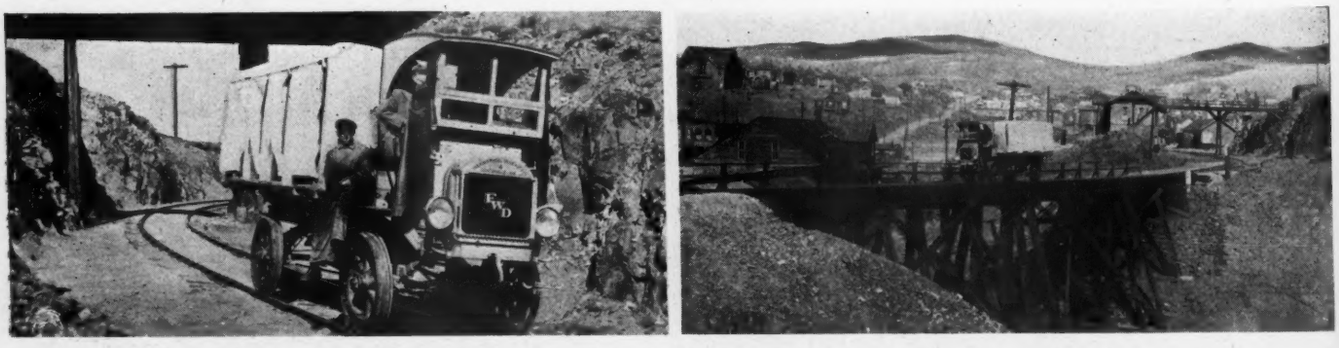
Intensive salesmanship is the only thing that will win now. It is necessary to find the prospects—go to them—and show them. This means work—old-fashioned effort that many have almost forgotten. But truck business is still there—and "1921 Will Reward Fighters."

New Denby Dealer at Chicago

A new truck retailing company in Chicago has opened offices at 1509 South Michigan Boulevard. The company is called the Chicago Denby Sales Co., and deals in the lines of trucks that its name indicates.

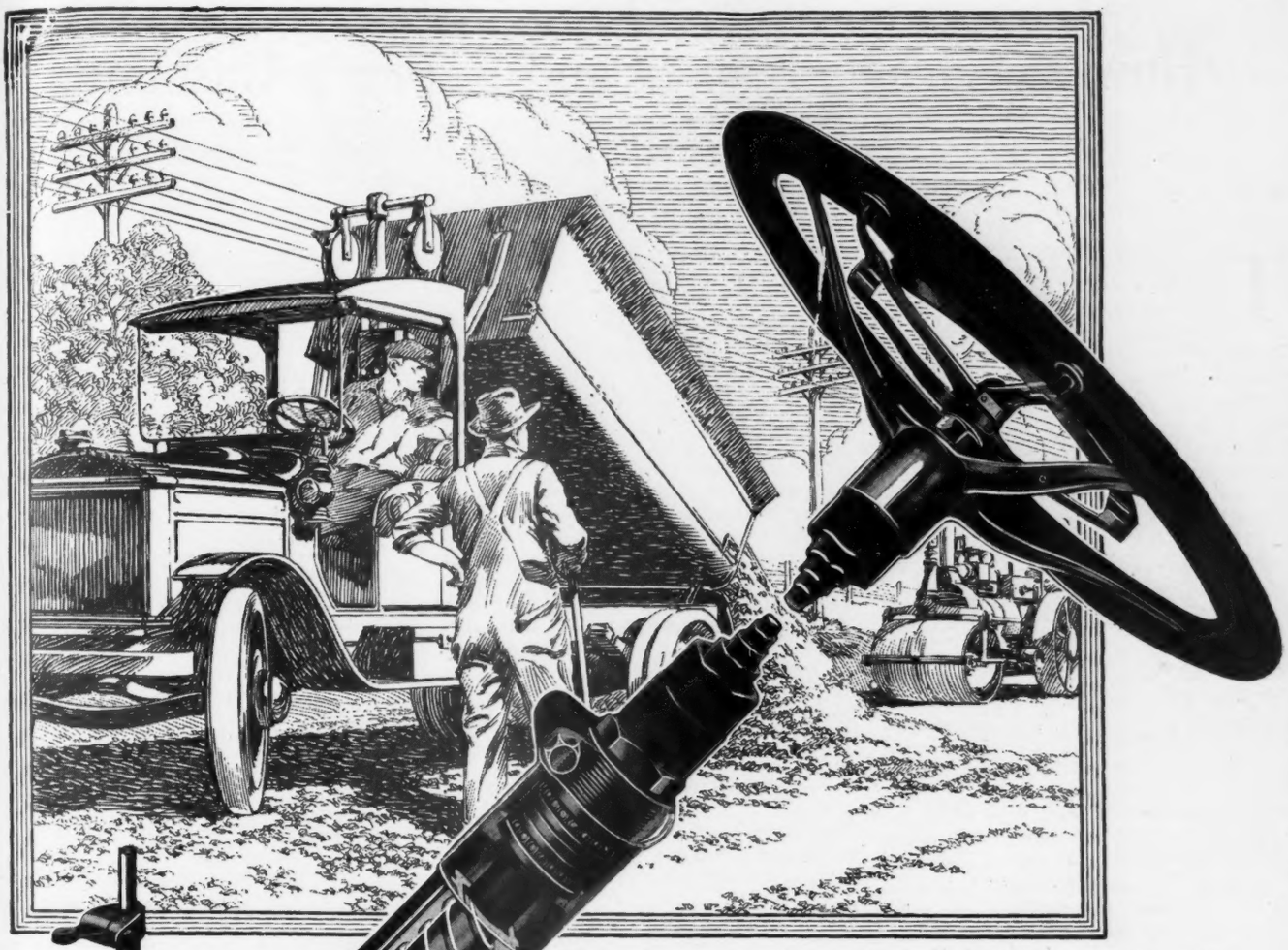
S. S. Gilbert, a well-known truck factory man, and his brother N. O. Gilbert, until recently general manager in the Chicago district for Reo passenger cars and trucks, are the principals.

The automobile industry is paying annually $143,000,000 to the Federal government, with state fees of $64,000,000 and personal property taxes and others fees of $50,000,000.



Showing Two Sections of the Track Over Which Employees of the Cresson Consolidated Mining Co. Are Transported Daily in a Three-Ton FWD, Which Has Been Equipped With Flanged Wheels

The truck was formerly run over a rough road and the contrast in comfort of the new method over the old is immense. This four-mile line also proves the adaptability of the motor truck to operate on railroad tracks



Building Its Own Road Bed
— *to Haul America's Freight*

The transportation problem of America will eventually be worked out—not on steel rails only, but on hard pike roads; not with engines and box cars only, but with motor trucks and trailers. This means more roads—better roads. The motor truck is today helping to build better roads that it may use them to the benefit of the community.

Ross Steering Gears are playing an important part in this work. The exclusive screw and nut design provides an enormous bearing surface. This bearing surface, in turn, means greater efficiency, greater safety and reliability, and easier steering—both in the motor trucks that are employed in building the road-bed and in those which later will haul freight and express over it. Ross Gears are now standard equipment on 455 different truck models from 178 different manufacturers.

Further Information Furnished on Request

ROSS GEAR & TOOL COMPANY

760 Heath Street Lafayette, Indiana, U. S. A.

ROSS STEERING GEARS

THE STEERING GEARS THAT PREDOMINATE ON MOTOR TRUCKS

How to Garage, Inspect and Repair a Gasoline Distributing Fleet*

By F. A. BEAN, Consulting Engineer Wayne Oil Tank and Pump Company

THE garaging of a fleet of trucks housed at a central station is a question requiring serious study. The type of building to be used is often governed by the land available on which to build.

There are only two types of building now in general use for this purpose. In one there is a central aisle with trucks parked on both sides. The various trucks range in length of from 19 to 28 ft. over all and have a turning radius of from 20 to 32 ft. This means that when the smaller are used the width of span should be at least 75 ft., but where the units are 3½ tons or greater the span should be increased to 85 ft. These widths are not absolutely essential, but are very desirable, as they make easier and more rapid operation and greatly decrease the opportunities for accidents. This type of construction is, of course, expensive, as the roof should be carried on trusses for the full span so that no posts will interfere and cut down the driving area. This, of course, also adds to the cost of side walls and foundations.

Another type of garage which is very popular because reasonableness in price and adaptability to cramped quarters, consists of a number of stalls placed side by side and approximately 31½ ft. deep and 12 to 13 ft. wide without partitions between. The roof is carried on the rear wall and I beams running from the rear wall to the columns between the doors. This is a unit form of construction and is suitable for from one to an indefinite number of trucks. This type is a trifle harder to heat satisfactorily than the one previously described.

In all types of garages a concrete ramp 8 in. high should be so placed that when the truck with the greatest overhang has the back wheels against the ramp there will still be ample walking room between the end of the truck and the wall.

All garages should be supplied with a good wash rack and the cars should be washed by the night shift at least three times a week and more often when weather or road conditions demand. There is no poorer advertisement than for an oil company to allow its trucks on the street day after day covered with dirt and grease.

A small heater should be installed in such manner that gasoline vapor cannot possibly reach it, that will heat a tank of about ten barrels of water.

Two systems are in common use for filling the trucks with fuel, lubricating oil and water. One is to have them issued to the chauffeur by the garage foreman the last thing at night or the first thing in the morning. If this system is adopted it is best that cars be filled at the end of the day so that there will be no delay in getting the trucks on their routes in the morning. The other method is to have this work done by the night shift and then checked by the driver in the morning. Whichever system is employed the driver should be held rigidly responsible as to whether his truck is filled with fuel, lubricating oil and water. Failure to know definitely that this has been properly attended to should be cause for immediate dismissal.

The garage should have installed a good air compressor with automatic starter and cut out of sufficient capacity to care for the largest tires in service. Air lines should be carried around the entire garage with outlets behind each truck so that a truck will not have to be moved to inflate the tires.

Garages should be so placed on the property that trucks will not be obliged to see-saw back and forth in order to get in and out of the building. The driveway in, should have a width of at least 5 ft. greater than the largest turning radius of any truck in use, and no buildings should be placed opposite the garage which will tend to cause congestion in this part of the drive.

An extremely dangerous method which is being practiced by some oil companies is to fill trucks in the early evening and allow them to stand in the garage all night. Another method which allows the trucks to get under way promptly in the morning is to have the truck filled about 5 o'clock in the morning and then gaged by the driver before leaving.

Probably the most satisfactory system is to have a filling rack large enough to accommodate about one-half of the fleet in filling at one time and of such diameter filling pipes as will insure rapid loading. One-half of the fleet can come to the rack as soon as business opens and be out of the way and on their routes in a very few minutes and allow the entire fleet to be dispatched on their first trip inside of an hour. It also eliminates the greater portion of the fire hazard and all unnecessary movement of the trucks.

Inspection of Trucks in Service

If maintenance charges are going to be held down to a minimum some form of an inspection system should be installed to cover the trucks in service.

The daily report blanks to be made out by the truck chauffeur and described under reporting systems should be watched daily to see just how the truck is operating. All items mentioned such as "brakes not holding," "motor heating," "back firing," "muffler explosions," "motor missing," "radiator or pumping leaking," "odometer not working" should be repaired each night.

If the motor equipment is standardized to one make an extra motor and radiator will do away with a great deal of the taking of trucks out of service for what are really minor repairs. Grease cups should be turned down every night.

When possible an extra truck should be maintained to relieve any truck which is in need of repairs of such magnitude as to interrupt the distributing service. It is also used to replace trucks as they are withdrawn from the service for the annual overhauling and painting. The principal use of this truck, however, is to relieve each truck once in ten days or two weeks for a full period of twenty-four hours.

During this period the truck which is taken out of service should be inspected, and this does not mean a mere superficial inspection, but on the other hand it should be just as thorough as it is possible to make it. Every bolt and nut should be looked at and tightened if necessary. Every moving part oiled, the grease cups filled, crankcase oil looked at, differential and transmission refilled if needed.

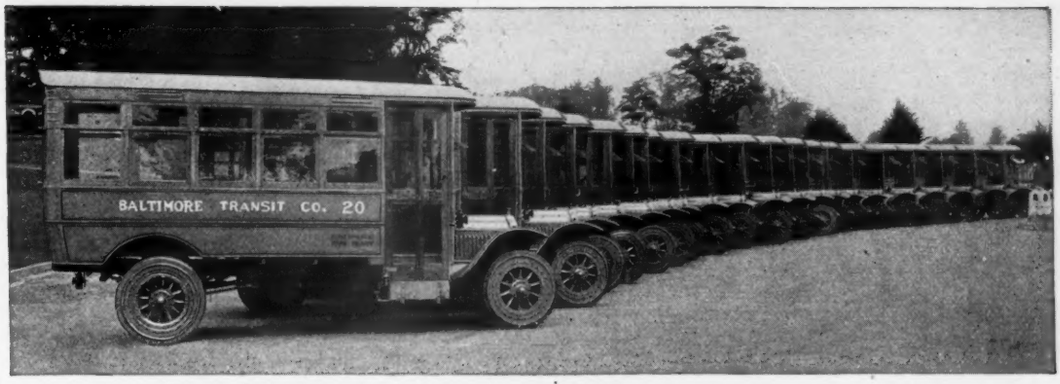
At outlying stations where there is only one or two trucks and no mechanic capable of making repairs the chauffeur's daily reports should be carefully watched and when items appear which need attention a man should be sent out promptly to make them. If the repairs are of any magnitude the extra truck should be sent out as a relief on the route. Even though the daily reports show no work necessary the master mechanic should visit outlying stations at least once in thirty days and give the trucks a careful going over.

When a chauffeur's daily report calls for some small repair work or adjustment, the fleet captain or other person first receiving this report should give a proper shop order to the master mechanic or shop foreman for its performance. This order should show all labor and material used, the same as a large repair job or overhaul. The completed order should be returned through the same channels, but in reversed order from that in which it was sent out to show that the truck is in perfect operating condition, and then passed on to the accounting department for posting.

The inspectors should fill out a form prepared for that purpose showing briefly just what work was done and the condition of each item or part of the truck when turned back into service. This report is in addition to the regular repair shop order and is for the use of the mas-

* This article is a continuation of a series relative to gasoline distribution, which was started October, 1920.

The Resiliency is Built in the Wheel



Fleet of Twenty Trucks, Sewell-Equipped, Owned and Operated by the Baltimore Transit Co.

Sewell Cushion Wheels

Branches of the Sewell Cushion Wheel Co.

Akron, Ohio
Atlanta, Ga.
Baltimore, Md.
Beaumont, Texas
Boston, Mass.
Buffalo, N. Y.
Burlington, Iowa
Camden, N. J.
Casper, Wyo.
Cedar Rapids, Iowa
Chattanooga, Tenn.
Cheyenne, Wyo.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbia, S. C.
Columbus, Ohio
Dallas, Texas
Davenport, Iowa
Denver, Colo.
Easton, Pa.
Eldorado, Kans.
Erie, Pa.
Fall River, Mass.
Ft. Smith, Ark.
Ft. Wayne, Ind.
Harrisburg, Pa.
Houston, Texas
Hutchinson, Kans.
Jacksonville, Fla.
Joplin, Mo.
Kansas City, Mo.
Knoxville, Tenn.
Lancaster, Pa.
Lawrence, Mass.
Lockport, N. Y.

IN EVERY FIELD OF TRUCK TRANSPORTATION

SEWELL CUSHION WHEELS HAVE PROVEN THEIR EFFICIENCY AND ECONOMY BY SUPPLYING PRACTICAL PERMANENT RESILIENCY TO MOTOR TRUCKS

Sewell Cushion Wheel Co.

DETROIT, MICH.

Branches of the Sewell Cushion Wheel Co.

Los Angeles, Cal.
Louisville, Ky.
Memphis, Tenn.
Miami, Fla.
Middletown, Conn.
Minneapolis, Minn.
Milwaukee, Wis.
Mobile, Ala.
Montgomery, Ala.
Nashville, Tenn
Newark, N. J.
New Orleans, La.
New York City
Norwich, Conn.
Omaha, Neb.
Peoria, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Me.
Portland, Ore.
Providence, R. I.
Pueblo, Colo.
Rochester, N. Y.
Salt Lake City, Utah
San Antonio, Texas
San Francisco, Cal.
Seattle, Wash.
St. Louis, Mo.
Springfield, Mass.
Springfield, Mo.
Toledo, Ohio
Washington, D. C.
Wichita, Kans.
Wilkes-Barre, Pa.

Sewell Wheels Can Be Applied to Any Motor Truck Without Changing the Design or Construction of the Truck

ter mechanic and fleet captain and not for the accounting purposes.

Repair and Paint Shop Methods.

The methods or system of work to be used in the repair and paint shops are not radically different from what should be employed with trucks in any other industry, if they are to be properly maintained and operated.

The repair shop and paint shops should be separate buildings if possible, if not they should be separated by a fire wall with fire doors. The paint shops should be provided with a dust-proof varnish drying room. No work except the actual varnishing jobs should be done in this room and no repair work should be permitted in the paint shop. Paint and varnish work can be very economically performed by an air brush or spraying system and in the majority of cases the finished job has a better appearance than when applied by brush.

All material, repair parts, lubricating oils, greases, paints and special tools should be kept in a stock room and only distributed upon a requisition from the foreman.

In addition to the forms already mentioned two blank forms covering tire work should be kept. The first should cover tire changes. When a tire is taken from stock and placed on a car this tire change form should be filled out, showing car number, tire number, tire wheel it is taken from (if not new), wheel to which attached and hubodometer reading if not put on the running board. When a tire is changed a blank should be filled out, giving all of the above data and reason for change and cost of any repairs. This blank form is turned in for posting on the tire ledger. The tire ledger covers every tire received by the stock room and will show the follow data: serial number of tire, make, size, tread, guaranteed mileage, cost, order number and where bought, shop order, number for repairs, cost of repairs and completed mileage.

Arrangements should be made to do the painting whenever possible immediately after the annual overhaul. The annual overhaul and painting should be so scheduled as to be spread over the entire year. This will permit of a small payroll for mechanics and the keeping of them busy at all times. The total of time shown on all shop, both repair and paint orders, should be equal to the amount of the pay roll for each day.

Storage batteries should be removed from cars at least once every six weeks and completely discharged and then immediately charged until the gravity of the solution is up to the standard required by the manufacturer.

Build Now for the Automotive Market of the Future

A PERSPICACIOUS conception of the fundamental conditions, as they exist for the future of automotive sales apart from the natural and understandable relapse of the present, contains nothing but the raw fact that the automotive industry is firmly founded on bed-rock, and that it has suffered only a transient suspension in its process of continued growth. Emlen S. Hare, president, Hare's Motors, New York City, points out in the following that the automotive industry has so inseparably linked itself up in the operating scheme of all of America's industries that the well being of its very life would have a direct effect on the well being of the various industries. Briefly, he says, the business is there, prepare for it.

"There has always been an increasing potential demand for freight and passenger transportation.

"Short periods of business readjustment, such as we are coming out of, come along which slow up buying temporarily, but do not affect the underlying necessity for automotive transportation. Thus it is that over a period of years sales of trucks and cars show a steady increase.

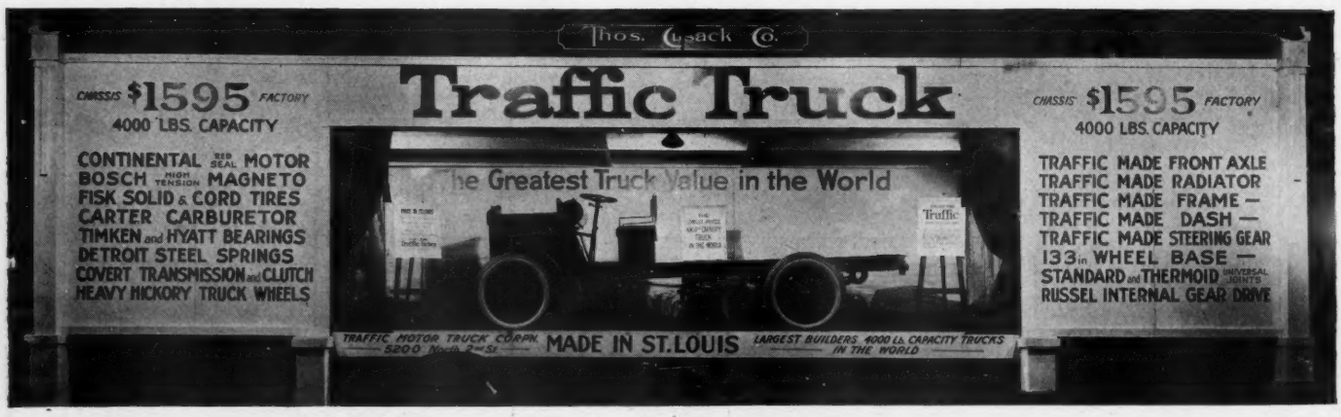
"I am inclined to think that the demand for automotive transportation has in reality been greater, and will in the future be greater than most of us have realized. I believe we have all suffered through being able to take orders for a volume of business with little corresponding sales effort, and therefore we were not as well prepared as we should have been to keep the desirability of automotive transportation in front of prospective buyers during the last six months.

"Easy sales are apt to make an opportunist of the dealer rather than a builder, and I believe what we need most in the industry today is primarily men who are big and who will think of the public's requirements over a period of the next ten years and then set their manufacturing plants, or dealers' establishments, on a solid basis with a view to building for the maximum results over a period of years rather than hastily speeding up production and sales effort to take advantage of a temporary seller's market.

"It is only through substantially building, and an avoidance of opportunist methods, that the dealer can obtain and hold the confidence and respect of his community, and thus place himself in a position where the public rely on his advice in matters of automotive transportation rather than discounting it as is too often the case today.

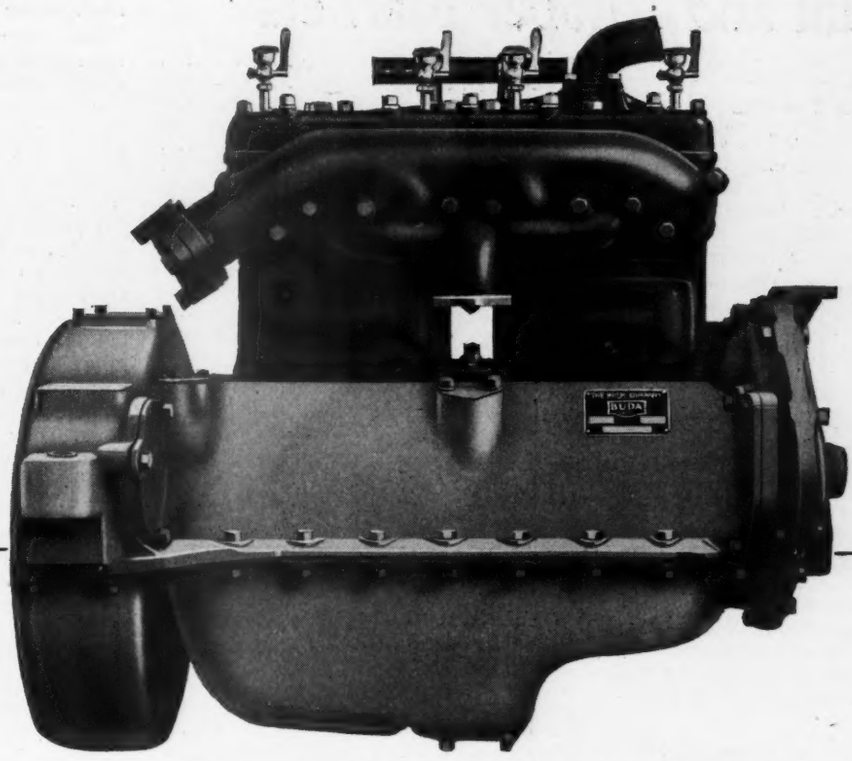
"Just as railroad tracks largely govern the amount of railroad trains that can be used to advantage, so the amount of good roads will always govern the amount of automotive transportation, and when we consider that not over fifteen per cent of the roads of this country are fit for motor trucks and automobiles, the tremendously increased road building program now under way in this country will in itself greatly enlarge the market for motor trucks and cars.

"I am thoroughly convinced that from an economic standpoint the economy of motor trucks and cars will in the future influence railroads, steamship lines, road building, cities, and other conditions which affect the use of trucks and cars to adopt themselves so that the use of automotive transportation can be used to the maximum extent."



This Original and Spectacular "Stunt" Recently Pulled Off at St. Louis Automobile Show Might be Said to Have Had the Effect of Transferring the Big Ring Outside

It is a combination stage and painted bulletin, which was erected by the Traffic Motor Corp., St. Louis, on a vacant lot immediately adjoining the building which housed the main Automobile Show. The whole structure was brilliantly painted and illuminated, and on the floor of the stage was placed a standard Traffic truck chassis. The display had to be seen by almost every single person of the many thousands who attended the Show. The whole story of the Traffic was briefly but emphatically told on the board and it was certainly entitled to the favorable commendation that everybody made.



New Buda "Buddie" engine for three-quarter and one-ton trucks

IN the most strenuous tests, the new Buda "Buddie" engine has demonstrated its ability to satisfy in full the power needs of the three-quarter and the one-ton truck.

To these nimble, pneumatic-tired commercial cars the Buda "Buddie" brings ample speed plus the qualities of reliability, economy, and long working life.

The Buda "Buddie" (Model MU) has a bore and stroke of 3⅝ by 5⅛ inches. It has the same excellence of design, easy accessibility and toughness of build that go into the eight other Buda engine models, each of which exactly suits a particular hauling service.

It is a typical Buda quality product, matured by our 40 years of engineering and manufacturing experience.

We shall be pleased to forward detailed drawings and specifications of the Buda "Buddie" to all interested truck builders and engineers.

THE BUDA COMPANY, HARVEY CHICAGO SUBURB ILL.
ESTABLISHED 1881

BUDA
The
ENGINE

Metal and Rubber Markets

Increasing Demand for Export Steel

Steel mills, fabricators and export selling agents speak more cheerfully of the export situation. It is true that demand for commercial steel from Europe is wanting and that South American warehouses are uncomfortably overcrowded with material, but new wants which cannot be supplied from accumulated stocks are coming into sight. The orders are not individually heavy but they are appearing with more regularity.

In the local market there is some encouragement in a slowly increasing inquiry for fabricated steel for buildings. That the builders are beginning to show some interest is taken as a good omen. If the funds were available the present appears to be an opportune time to cover requirements, as prices are low and the mills unusually eager to secure business.

There is still considerable hesitancy on the part of jobbing and wholesale distributors. Their stocks are not particularly heavy but the public is not buying and the movement into consumption is exceptionally slow.

Steel Products Prices

Per ton—Pittsburgh—			
Bessemer billets	38 50	a	....
Open hearth	38 50	a	....
Forging billets	43 50	a	....
Sheet bars	42 00	a	....

Sheets

The following prices are for 100-bundle lots and over f.o.b. mill:

Blue Annealed Sheets—			
Pittsburgh (base)	3 20	a	3 55
Philadelphia	3 55	a	3 90
New York	3 58	a	....
Galvanized Sheets of Black Sheet Gauge—			
Pittsburgh	5 35	a	5 70
New York	6 08	a	....
Tin—Mill Black Plate—			
Pittsburgh	4 10	a	4 35
New York	4 73	a	....

Structural Material

Structural shapes, Pittsburgh	2 20	a	2 45
Structural shapes, Phila.	2 60	a	2 80
Structural shapes, New York	2 63	a	2 83

Finished Iron and Steel

Steel bars, New York	2 38	a	2 73
Steel bars, Pittsburgh	2 00	a	2 35

Iron and Steel at Pittsburgh

Bessemer iron	28 96	a	....
Bessemer steel, f.o.b. Pitts.	38 50	a	....
Skelp, grooved, steel	2 45	a	....
Skelp, sheared, steel	2 65	a	....
Ferromanganese (80%)	90 00	a100	00
Steel, melting scrap	14 50	a 15	00
Steel bars	2 00	a	2 35
Wire rods	57 00	a	....
Iron bars	3 06	a	4 00
Plain wire	3 00	a	3 25
Plain wire, galvanized	3 95	a	....
Wire nails, Pittsburgh	3 10	a	3 25

Pig Iron, Fuel and Alloys

No. 2 X, Philadelphia	30 09	a	.....
No. 2 East Pennsylvania	28 79	a 30	79
No. 2 Southern Birmingham	27 50	a	.....
No. 2 Virginia	28 00	a 30	00
No. 2 Buffalo	28 00	a 30	00
No. 2 Chicago	28 70	a	.....
No. 2 Pittsburgh	29 96	a	.....
No. 2 Valley, furnace	27 00	a	.....
Basic Valley, furnace	25 00	a	.....
Bessemer, Pittsburgh	28 96	a 30	96
Malleable, Chicago	29 20	a 30	20
Malleable, Valley	27 00	a	.....
Malleable, Buffalo	32 50	a	.....
Gray forge, Pittsburgh	27 96	a 28	96
L. S. charcoal, Chicago	38 50	a 40	50

Ferro Alloys

Domestic Ferromanganese—			
Prompt delivery, 80%	90 00	a100	00
First quarter	90 00	a	.....
Spiegeleisen, 19 to 22%	40 00	a 45	00
Ferrosilicon, 50%	92 00	a 95	00
Bessemer, ferrosilicon, 12%	59 60	a	.....

OLD MATERIALS—The following prices are current in New York:

Heavy melting scrap	10 00	a 10	50
No. 1 yard wrought	16 00	a 17	00
Iron and steel pipes	10 00	a 11	00
Machine shop turnings	8 50	a 9	00
Cast borings	9 00	a 10	00
Stove plates	15 00	a 16	00

Rubber Market Easier

Para—Up-river, fine	17	a	17½
Up-river, coarse	11½	a	..
Island, fine	..	a	18
Island, coarse	12	a	..
Caucho, ball, upper	14	a	14½
Caucho, ball, lower	12	a	..
Cameta	11	a	..
Brown crepe, thin, clean	..	a	16
Brown crepe, rolled	13	a	..
Smoked ribbed sheets	18½	a	..
Centrals—Corinto	12	a	..
Esmeralda	12	a	..
Guayule, wet	15	a	16
Guayule, dry	25	a	..
Balatta, block, Trinidad	53	a	..
Balatta, block, Colombian	38	a	39
Balatta, Panama	36	a	37
Balatta, sheet	65	a	68

Scrap Rubber

Tires—Automobile	1	a	..
Inner tubes, No. 1	..	a	8
Inner tubes, No. 2	..	a	5

Our London Letter

From OUR BRITISH CORRESPONDENT

In the British automobile industry things are far from bright and it cannot be denied. In the passenger automobile market the conditions are distinctly bad; indeed, one or two firms are settling with creditors by handing over automobiles. Even the commercial car business is bad; in fact, one of the oldest and most reputable firms in the truck-making trade, namely Straker-Squire, was compelled into liquidation as a direct result of it. Besides, many others, some of which are old established houses, because of the depressing conditions, have been compelled to step out of line. Unfortunately, they inopportunely went in the manufacture of passenger car engines and now find themselves left with a considerable number on hand. In this manner the passenger car end of the industry in England affects the commercial car industry. Those concerns that have already gone under, will quite probably be followed the next few months by other important truck-making firms presently suffering from overwhelming difficulties. These, however, will represent the aftermath of the past.

This state of affairs, is, in part, due to the new and excessive taxation of automobile traffic of all sorts, and partly to crushing general taxation and general trade depression, but actually business is now more likely to get better than worse, judging from prevailing indications; in fact, the leading men in the trade think that conditions are already improving, if only slightly, and that this improvement will receive a considerable stimulus from the removal of the excess profits duty which has been strangling commerce throughout the country. Covering such a wide range as does the commercial truck this withdrawal will probably be felt by truck manufacturers as much as any, though it is not likely to take effect so immediately as in businesses supplying direct to the public.

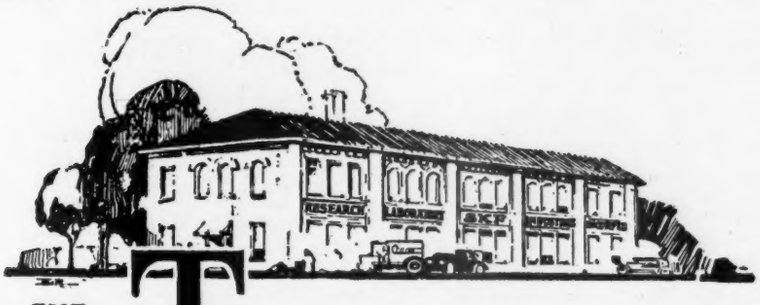
It is generally believed that the tendencies point strongly to a resumption of automotive activities in its every branch nearer normal than existed since the war by summer.

New British Constructional Requirements

Ever since 1904 the law of the United Kingdom has drawn a line between automobiles over and those under 2-tons unladen weight. The latter are entitled to travel at 20 m.p.h., but the former, if the laden weight on any axle does not exceed 6 tons, are permitted a speed of 12 m.p.h. and with weights over that limit only 8 m.p.h. is permitted. In any case the axle may not carry more than 8 tons laden. Further, the unladen weight of a motor truck in this country must be less than 5 tons and the combined weight unladen of any tractive vehicle and its trailer not more than 6½ tons, always remembering that a British ton is 2240 lb.

For some time past a departmental committee have been considering modifications of the law and though their report is not yet published there is every reason to believe that the unladen weight limit is to be raised to 7¼ tons and the maximum laden axle weight to 9 tons. There is reason, too, to hope that the 12-mile an hour speed limit may be raised to 16. These modifications will have an important effect on commercial car design.

The prophets have been getting busy. Lord Montagu, in a recent paper, forecasted six and even eight-wheeled road vehicles. The six-wheeler is no new thing; it is already with us in the shape of the semi-trailer, although 16 years ago there were a number of self-contained six-wheelers in France. In view of the increase in traffic to which the roads are threatened, obviously the heavier the loads that can be taken the better from an economic point of view, and the more axles over which the load can be distributed the better from a structural point of view, but if any material increase of load is to be got from the eight-wheelers the bridges on many roads will want strengthening and that is a matter requiring time.



SKF
Research Laboratory established at Philadelphia to co-operate with the Gothenburg Laboratories in the study of the American Manufacturers' friction problems.

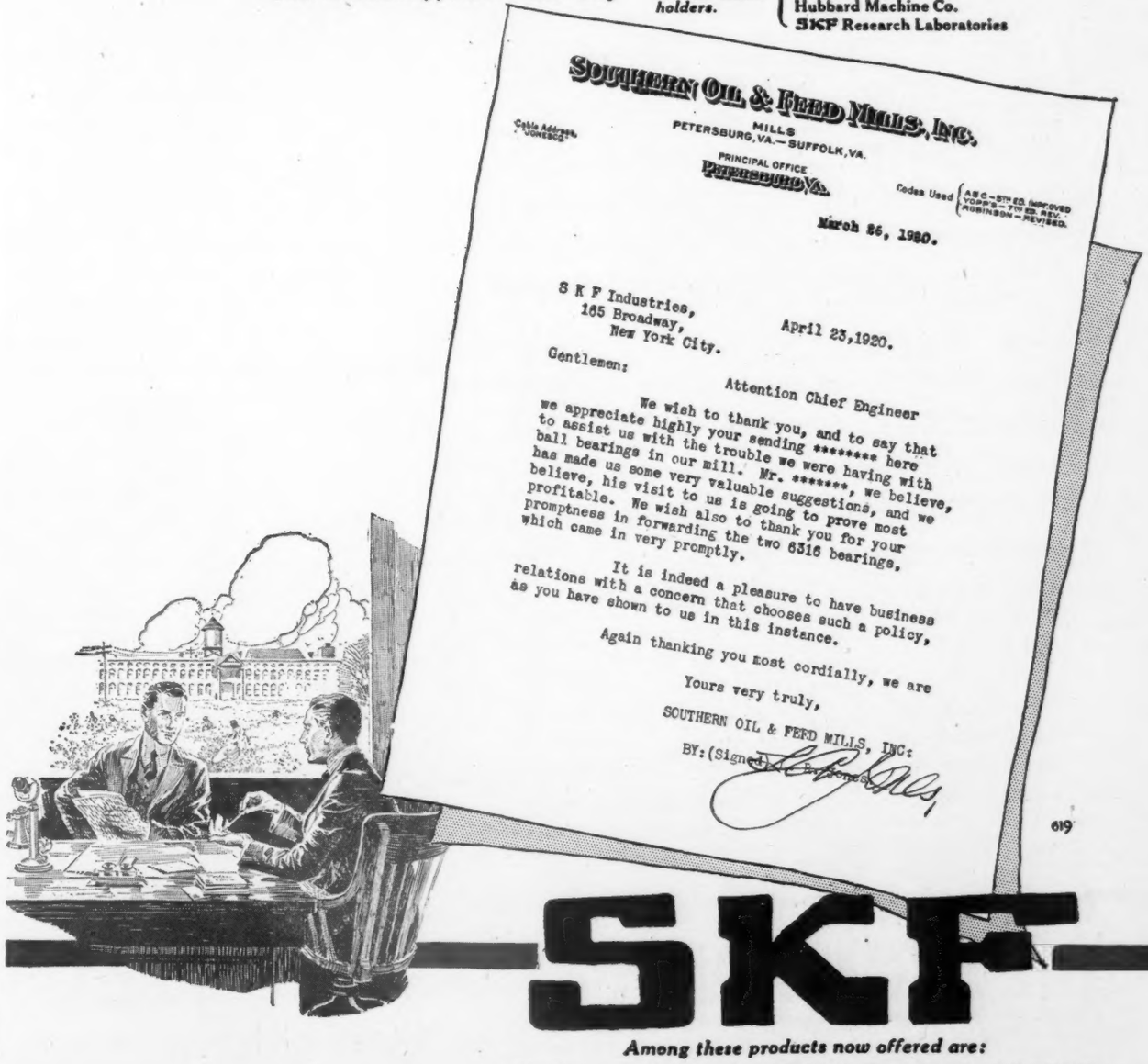
THE technical advice brought you by our engineers embodies the experience of highly trained organizations in all parts of the world in the solving of friction problems.

This international experience is both technical and practical and is acquired in co-effort with the best international research endeavor.

SKF service in America is linked to this international experience. Its tangible evidence is found in products marked "**SKF**" and in the advice supplied you by our engineers.

SKF Industries, Inc.
165 Broadway, New York City

Supervising at the request of the stockholders.
- The Hess-Bright Manufacturing Co.
- SKF Ball Bearing Co.
- Atlas Ball Co.
- Hubbard Machine Co.
- SKF Research Laboratories



SOUTHERN OIL & FEED MILLS, INC.

Cable Address: "VONESCO"

MILLS
PETERSBURG, VA.—SUFFOLK, VA.

PRINCIPAL OFFICE
PETERSBURG, VA.

Codes Used: A.B.C.—5TH ED. IMPROVED; VOGT'S—7TH ED. REV.; ROBINSON—REVISED.

March 26, 1920.

S K F Industries,
165 Broadway,
New York City.

April 23,1920.

Gentlemen:

Attention Chief Engineer

We wish to thank you, and to say that we appreciate highly your sending ******** here to assist us with the trouble we were having with ball bearings in our mill. Mr. *******, we believe, has made us some very valuable suggestions, and we believe, his visit to us is going to prove most profitable. We wish also to thank you for your promptness in forwarding the two 6316 bearings, which came in very promptly.

It is indeed a pleasure to have business relations with a concern that chooses such a policy, as you have shown to us in this instance.

Again thanking you most cordially, we are

Yours very truly,

SOUTHERN OIL & FEED MILLS, INC:

BY:(Signed) [illegible]

619

SKF

Among these products now offered are:

Single row deep groove ball bearings. Thrust bearings. Steel balls.
Double row self aligning ball bearings. Transmission equipment.

Here's Proof That the Dealers' Service Station Does Pay

(*Continued from page 40*)

den rate. And knowing the exact overhead enables the dealer to regulate his labor charges per hour and to **know whether he is losing or making on a charge of $1.50 an hour.** The correct overhead may never be less than 100 per cent on productive labor, but unless the dealer knows his burden rate he may either rob the customer or himself. The labor rate of the company is not higher than the standard now prevailing in New York and it is less than in some instances. In speaking of the burden rate Mr. Kraemer said that it should definitely be ascertained so that the customer could be given the benefit of any decrease in costs.

Dealer Influence on Maker

The item of guarantee maintenance on the sheet should not be overlooked. It is important for the dealer to know what it costs him to carry out the guarantee as well as to determine its relation to sales. As may be imagined the service department is a factor in that it knows the frailties of design, quality of material and workmanship entering into the various units of the truck. Detailed reports are maintained and the costs of remedying the troubles are recorded, which supply excellent ammunition when the representatives of the unit makers call to investigate complaints. The complaints are forwarded to the factory and it is believed that they have a certain amount of influence in the selection of units. This brings up the point so frequently overlooked and that is the dealer influence. Where dealers maintain a real service station, manned by capable mechanics and in charge of a technical head, the unit maker may discover that the repair department is a factor in the sale of his product to the factory. The closer relation of the service departments with the engineering and sales heads of the factory is bound to be productive of better designed and more accessible units. At the time the writer called at the service station mentioned in this article Mr. Kraemer had a bundle of sheets filled with data that will give a unit maker's representative some uneasy moments when he calls in the near future.

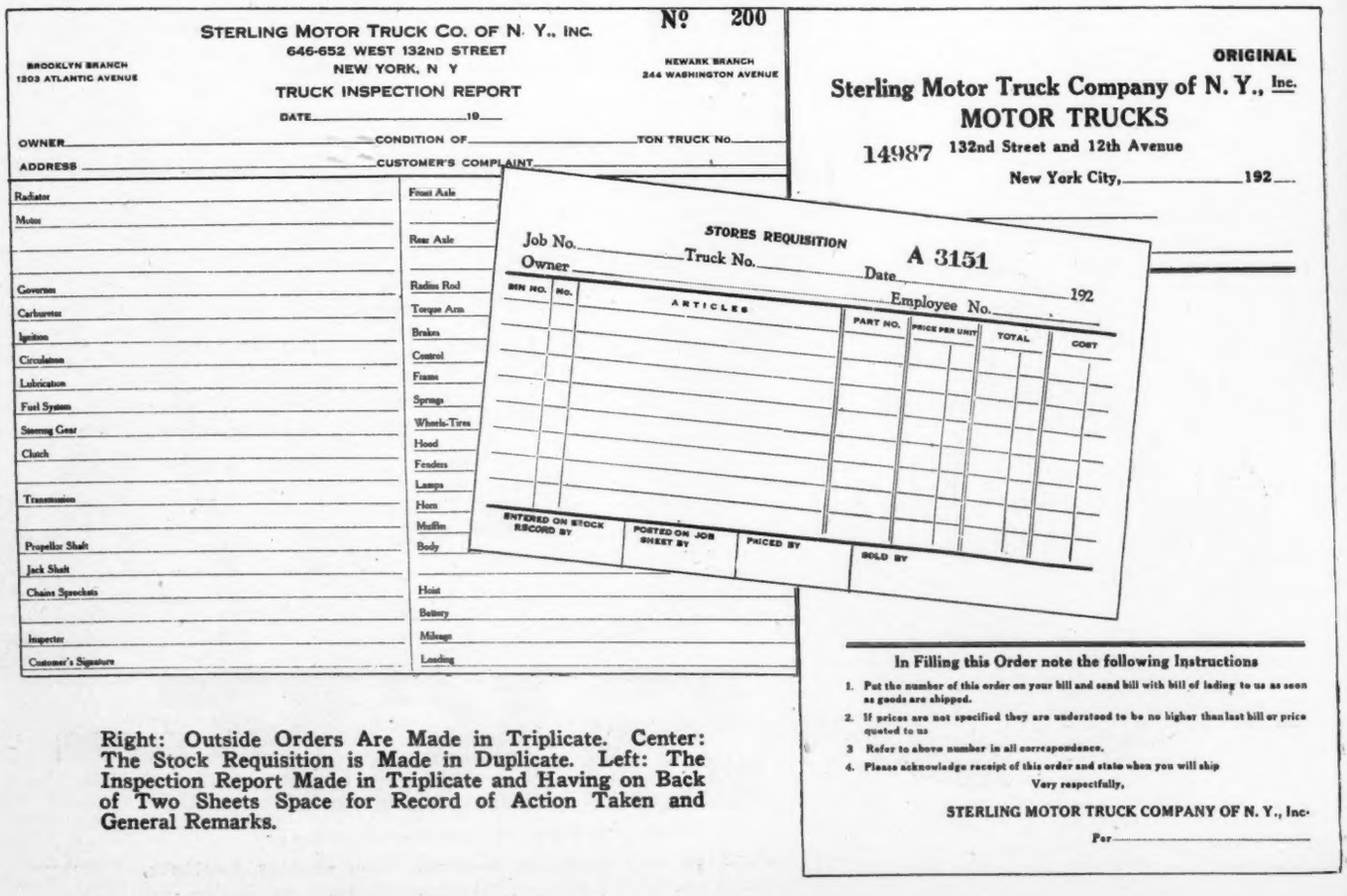
Cash for Parts and Labor

The stock room is, as previously stated, a separate department. A sufficiently large stock is maintained to amply service the trucks in the territory as well as to supply when necessary the branch stations in Newark and Brooklyn. All parts are charged the customer at manufacturer's list prices, plus 10 per cent to cover war tax, transportation and handling expenses. Terms on parts and all work are cash on delivery, the C. O. D. basis having been adopted in 1917. Of course there are few customers who have charge accounts. Since the adoption of the cash basis the losses have been practically nil. Since the cash rule it is said that many less arguments ensue over repair bills and that the customers are better pleased. And it is fitting to observe that the big deficit early referred to was largely due to extending credit to all. When Mr. Held took charge these bills were cleaned up and the process was mostly charging off to loss.

Referring once more to the cost sheet it will be noted that there is a column headed "Job or Order No." Each operation or job is given a number as in conventional practice and is entered in the column. The costs of the miscellaneous accounts, such as work performed outside, are entered, also cost of garage supplies. The cost of the material and labor is also recorded and these plus the burden rate enable the accountant to determine exactly the total costs. The determination of the profitable labor charge is then a matter of mathematics.

Cost Influence on Salesmen

With the costs determined of any department it is a simple matter for the head of the company to ascertain leaks in a department, if any, and to apply a remedy. Even work, material or supplies for the salesmen's cars are charged to the sales department. One of the many advantages of the system is that, armed with sales costs, it is a simple matter to



STERLING MOTOR TRUCK CO. OF N. Y., INC.
646-652 WEST 132ND STREET
NEW YORK, N. Y.
BROOKLYN BRANCH 1203 ATLANTIC AVENUE
NEWARK BRANCH 244 WASHINGTON AVENUE
TRUCK INSPECTION REPORT
No. 200
DATE ____ 19__
OWNER ____ CONDITION OF ____ TON TRUCK No. ____
ADDRESS ____ CUSTOMER'S COMPLAINT ____
Radiator, Motor, Governor, Carburetor, Ignition, Circulation, Lubrication, Fuel System, Steering Gear, Clutch, Transmission, Propellor Shaft, Jack Shaft, Chains Sprockets, Inspector, Customer's Signature
Front Axle, Rear Axle, Radius Rod, Torque Arm, Brakes, Control, Frame, Springs, Wheels-Tires, Hood, Fenders, Lamps, Horn, Muffler, Body, Hoist, Battery, Mileage, Loading

STORES REQUISITION
A 3151
Job No. ____ Truck No. ____ Date ____ 192
Owner ____ Employee No. ____
BIN NO. | No. | ARTICLES | PART NO. | PRICE PER UNIT | TOTAL COST
ENTERED ON STOCK RECORD BY | POSTED ON JOB SHEET BY | PRICED BY | SOLD BY

ORIGINAL
Sterling Motor Truck Company of N. Y., Inc.
MOTOR TRUCKS
14987 132nd Street and 12th Avenue
New York City, ____ 192__

In Filling this Order note the following Instructions
1. Put the number of this order on your bill and send bill with bill of lading to us as soon as goods are shipped.
2. If prices are not specified they are understood to be no higher than last bill or price quoted to us
3. Refer to above number in all correspondence.
4. Please acknowledge receipt of this order and state when you will ship
Very respectfully,
STERLING MOTOR TRUCK COMPANY OF N. Y., Inc.
Per ____

Right: Outside Orders Are Made in Triplicate. Center: The Stock Requisition is Made in Duplicate. Left: The Inspection Report Made in Triplicate and Having on Back of Two Sheets Space for Record of Action Taken and General Remarks.

explain to the salesman why a big allowance will not be made for a trade-in and why the list price of the truck should be maintained. Knowing costs is why the service station is being conducted at a profit.

The repair department is conducted along conventional lines and in normal times employs about 35 mechanics. In common with all employes references are obtained on all mechanics and the data is filed. The mechanics are selected for their ability, character, experience and aptitude and are trained to specialize in certain operations, a plan generally productive of more efficient work and at a less cost to the customer. There has been little labor turnover in the service station, even during the war when the men had opportunity to change to a position paying better wages, which speaks well for their loyalty and for the company's labor policies. It is an open shop and each man is compensated according to his value.

The machine shop is well laid out and the equipment is sufficient to meet all requirements of an up-to-date service station. Special tools are developed to save time and labor and a new one was being constructed at the time of the writer's visit.

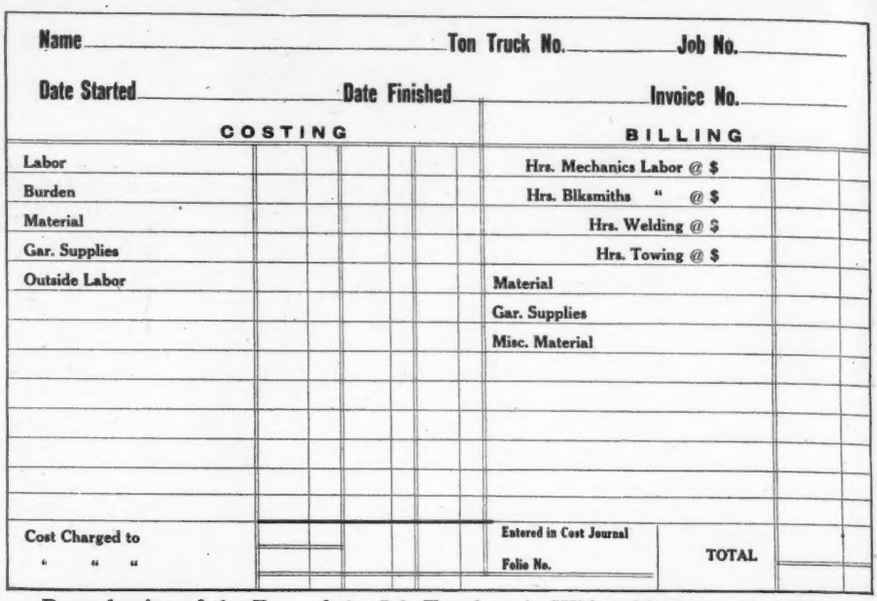
Checks Use of Taps, Drills, Etc.

The time clock is located in the tool room and is operated by the man in charge who also operates the Calculagraph. The time card is stamped by the tool room clerk when a job is started and finished. The clerk fills in the description of the work to be performed. This card goes to the office where the figures are checked after which the card goes in the job envelope. The mechanics exchange checks for tools, but only the experienced workmen are allowed the use of expensive and fine tools. All tools must be returned at night and in a clean condition. Manager Ernst checks the use of drills, taps and reamers to see that they are not abused and unnecessarily broken. The cost of drills, etc., per year in a large service station is quite an item when intelligent use is not made of them or the reason for excessive replacements analyzed.

A feature of the stock room is the use of the parts requisition slips in duplicate. No parts or materials are issued unless the order is signed by the foreman or service manager. These slips are serially numbered, the original goes to the office each morning and the copy filed in the stock room. This avoids the possibility of loss of a slip and as the numbers are checked serially daily in the office a missing slip is investigated.

Balancing the Inventory

A duplicate card system is employed in the stock room, one card remaining in the bin or shelf and on this car the parts withdrawn and received are entered. The duplicate of this entry is filed in the office. This is a perpetual inventory system, making for accuracy as well as balancing of the inventory. Any discrepancy between the office and stock room records is investigated. Being daily maintained the system enables Mr. Kraemer to determine the investment in parts per truck in service which is a most important item. For example: If the inventory is $80,000 and there are 400 trucks in service the investment per truck in parts will be $200 a truck.



Name _____ Ton Truck No. _____ Job No. _____

Date Started _____ Date Finished _____ Invoice No. _____

COSTING		BILLING	
Labor		Hrs. Mechanics Labor @ $	
Burden		Hrs. Blksmiths " @ $	
Material		Hrs. Welding @ $	
Gar. Supplies		Hrs. Towing @ $	
Outside Labor		Material	
		Gar. Supplies	
		Misc. Material	
Cost Charged to		Entered in Cost Journal	TOTAL
" " "		Folio No.	

Reproduction of the Face of the Job Envelope in Which All Forms Are Filed
Note provision for recording actual cost of work, etc., and charges to customer. These records are transferred to cost journal sheet

The starting of a job through the shop is conventional. Upon the driver making known the repairs needed a tester goes out with the truck and driver and checks the complaints. If other work is required the owner is communicated with if the driver has no authority. No work is undertaken without the owner's consent. The reason for the testing trip is that a driver may confound one trouble with another. The production order is made in duplicate. The original goes to the office in the job envelope and the copy to the service department. There is the usual card attached to the truck and giving details of the work to be performed.

Checking Outside Work

When work is to be done outside, a cylinder grinding job, for example, the order is made in triplicate and each is numbered serially. The original, white, accompanies the work. The yellow sheet is filed in job envelope and the light blue goes to the service station. If the repair work in the service station is completed and truck ready before bill is received from grinding concern the last named is called on the phone and price ascertained by the number of order. The name of person answering for the grinding company is asked and written down on yellow sheet with price quoted. If work is billed at a higher cost the sheet record price is quoted and insisted upon. All the forms referred to are filed in job envelope reproduced herewith. By the system the bill can be readily computed for the cash customer and without any delay. As may be noted the envelope provides a record of the cost of the labor, burden, material, etc., while on the opposite side is the billing. This includes the hours of labor, blacksmith, welding, towing, material, supplies and miscellaneous. The totals are quickly computed on the adding machine. The bill is then made out and paid. The records above referred to are then transferred to the cost journal. As the job envelopes are filed in number it is a simple matter to analyze in detail any charges which the customer may desire explained.

Caring for Come-Backs

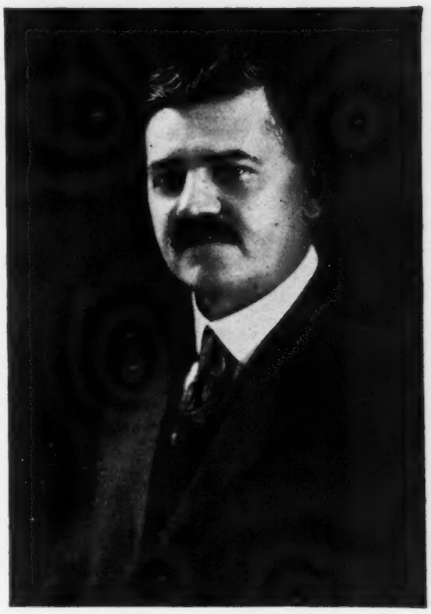
All work is carefully inspected by the foreman to avoid the possibility of comebacks, also to see that all parts and material, on which time has been reported, will be charged. The job is also inspected by the service station manager to determine what labor and material should be charged to the guarantee. Idle time of the mechanics is recorded by the Calculagraph and use of the time clock by comparison.

Such units as radiators, magnetos and coils are loaned the customer for four days without charge, after which 75 cents a day is charged for the use of the service radiator, 50 cents for magnetos and 25 cents for coils until repairs are effected on damaged unit. It is said that the repairs are profitable and are about 40 per cent on the manufacturer's prices. Rebuilt engines of each truck model are stocked and are installed in emergency cases. All engines overhauled or rebuilt are run on test about six hours after which the truck is given a road test. The testers are not repairmen.

Night Service is Profitable and Good Sales Argument

Night service is provided and it is said that it not only is profitable, but supplies the salesmen with excellent ammunition. The plan has its advantages in that the night watchman can be dispensed with. The night service is to be enlarged and to be made a feature, it being believed that idle or lost time for the customer will be greatly reduced and the service department made more efficient. A fleet of service trucks is maintained, these being shown in an accompanying illustra-

The Plant Where Mr. Albert Fisher Builds Standard Trucks



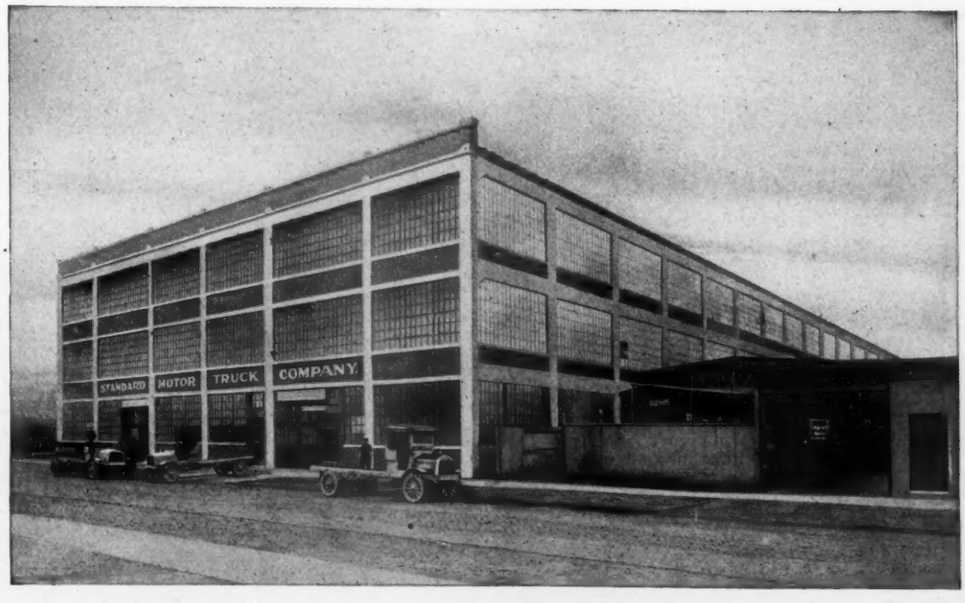
THE manufacturing plant where Mr. Albert Fisher builds Standard trucks ranks as one of the most complete in the motor truck industry.

Under one roof Mr. Fisher has, in addition to complete mechanical equipment, all departments: blacksmithing, woodworking, painting and trimming, necessary to build the entire truck.

Here the same conscientious manufacturing ideals, thorough, unhurried efforts, and business-like methods that brought Mr. Fisher wide recognition as a master craftsman in building commercial vehicles, are concentrated in a particular kind of motor truck workmanship that produces Standard trucks of great strength, mighty power, long life, and negligible maintenance.

It is not surprising, then, that thousands of Standard owners in every line of business have found their trucks so practical, reliable, economical, and endurable that they declare the Standard is "all the name implies."

STANDARD MOTOR TRUCK CO., Detroit, Mich.



tion. There is the inspection car, also a large wrecker. This brings up the subject of inspection.

When a truck is delivered the inspection and service wheels begin to rotate. The customer is informed that he is entitled to a year's free inspection of which the first three months is in shop and the balance on the road or place of business of the owner. The inspection report is made in triplicate, the original or white going to the customer and with the usual form letter explaining the function of the inspection, etc. Another copy goes to the service station to check the inspector's, etc., while the third goes to Mr. Kraemer. On the latter's sheet on back of slip is recorded the action taken, also general comments. Failure to cooperate or to have certain advised work done is followed up. The inspectors are routed and they cover New York, Brooklyn and Newark, which branches or service stations are controlled and checked by the New York end. In this manner it is seen that the trucks in and around the Newark and Brooklyn territory are inspected and proper service given; in fact, the New York office directs the policies of its branches. It is said that the service rendered in these places is similar.

Bonuses for Employees

Mr. Held and Mr. Kraemer are advocates of the bonus system and the heads of all departments receive a bonus based on profits. This helps, they contend, to make the department heads productive and builds an efficient organization. All employes receive recognition. One effect of the plan has been to create an incentive to ignore the time clock. Instances were quoted to the writer of where the garage foreman among others had sold trucks after hours. An incentive is provided the employes in all departments by the selecting from the ranks the managers, superintendents, foremen, etc., for the Brooklyn and Newark branches and as the plans of the company provide for the establishment of other and similar branches there is opportunity for all. One of the heads of one of the branches was working in the New York service station for the large sum of $7 a week three years ago. If you have any mechanic, Mr. Dealer, who complains that there is no future for him except the overalls and dirty work, cite him the case of the $7 a week man.

A brief outline of the sales system will conclude this article. The salesmen work on drawing accounts, charged against their commissions. When entering the employ of the company they are obliged to sign a contract which stipulates the rates of commissions, based on various trade discounts, not only on new trucks, but also second-hand trucks. This eliminates, it is claimed, any arguments and the possibility of law suits when the salesmen leave. A commission is paid to outsiders supplying prospects, such as drivers, customers and others. When the truck is sold the commission is paid by the company, but the salesman absorbs the expense when he closes the contract. It is stated that this plan has resulted in many sales.

Mr. Held says that the trade-in has caused more failures among dealers than any other factor because the truck is accepted at the wrong value. All trucks offered as part payment are appraised by the road inspector who supplies the sales manager with a written and detailed report. The shop superintendent estimates the probable costs for repairing or rebuilding the truck, after which the appraisal value is estimated or determined by either the sales manager or president. One of the rules which is strictly enforced is that a salesman, no matter how experienced, is not permitted to trade a truck without permission of the sales manager. Another rule is that no salesman is permitted to trade a second-hand truck until he has sold one. It was stated that the plan resulted in a profit being made in the second-hand department during the past two years.

Introducing Prospect to Service

The sale of used trucks is facilitated by repairing, cleaning and painting, and when it is the same make as sold a guarantee accompanies the sale. Salesmen are supplied with a schedule of used trucks showing condition, repaired or otherwise, size, tires, body, prices, etc. Few demonstrations are given, but when one is made it is with the understanding that a charge will be made for the service which is cancelled if the truck is purchased. Salesmen do not sell service but utilize photos of the fleet of service trucks of the station and endeavor to bring the prospect or customer in direct contact with the head of the service station. This avoids to a great extent the possibility of the salesmen conveying, indirectly, if you please, the thought that the customer will get something for nothing. The pessimist may be interested to learn that trucks are being sold and have been sold during the so-called period of depression. The writer saw the sales bulletin board and it indicates that, while we have not with us a seller's market, the buyer's market is not so bad if you have good salesmen plus real service. It is stated that 60 per cent of the prospects are old customers.

The moral of this story is that it is possible to give satisfactory service to truck owners and make the service departments pay. It can be done, but before a dealer can determine whether he is making or losing he must know his costs, **real costs**, and few really know them as they should.

A. S. A. of N. Y. Hears Commercial Haulers' Executive

An address by C. R. Collins, general manager of Commercial Haulers, a motor highway transportation organization, was the feature of the March meeting of the Automotive Service Association of New York, held Thursday evening, March 4th. Mr. Collins, who is a forceful and interesting speaker, pointed out to the service managers the growing tendency of cooperative owners associations and the practices of these organizations.

A new feature of the meetings was the demonstration of line reaming of bearings by C. C. Cowbray, which proved interesting to the members. It is the intention of the association to have at least one similar exposition at each monthly meeting.

The report of the annual ball committee, which event took place on February 10th, indicates that it was a huge success financially as well as socially. Considerable credit is due to the committee consisting of Frank Lowe, Ernest Derks, Otto Greisman and Charles Michaels. A special meeting of the service managers will be held on March 8th.

Manner in Which the Associated Equipment Co. of England Renders Service to Owners Stalled on the Road

Six of these service trucks are in operation, and each is completely fitted with the most essential parts for replacements and every necessary tool most efficacious to service. These vehicles are also used for visiting customers in different districts and keeping in touch with them

JOHNS-MANVILLE
Automotive Equipment

IT IS INEVITABLE

Progressive dealers and progressive goods must come together sooner or later.

Let's get together now!

Do your customers get what they expect?

OF COURSE, they rely upon your judgment. They expect you to give them the best brake lining, according to your knowledge. Therefore the lining you give them is an asset or liability to you, depending on its merit.

When you handle Non-Burn, you'll find them accepting it eagerly—because they know the name Johns-Manville and what it means in the asbestos field. They also know about Non-Burn through our national advertising. They know that brakes are safer and last longer with Johns-Manville Non-Burn Asbestos Brake Lining.

Johns-Manville
Noark Automobile
Lighting Fuses

Noark Fuses are made either with glass or fibre tubes. They are calibrated with unusual precision and insure positive electrical protection. Booklet listing American cars and size of fuses for each in every package.

Johns-Manville
Automotive Service
Sheet Packing

An economical sheet packing that can be used where high temperatures and pressures are encountered — especially adapted for gasketing intake and exhaust manifolds and cylinder heads.

Johns-Manville
Hubodometer

There is an increasing demand for an inexpensive and accurate mileage recorder for business cars and trucks. This instrument will enable you to meet this demand—at a profit.

Johns-Manville Clutch Facing

THERE is no other like it.

Made from long fibred Asbestos united with a special heat-resisting substance and compressed into facings of even texture and density throughout. Each facing is then ground accurately to proper thickness.

The result is a clutch facing from which you can expect new standards in service—dependable power transmission, smoothness in operation, and great wear resistance.

Johns-Manville Automobile Tape

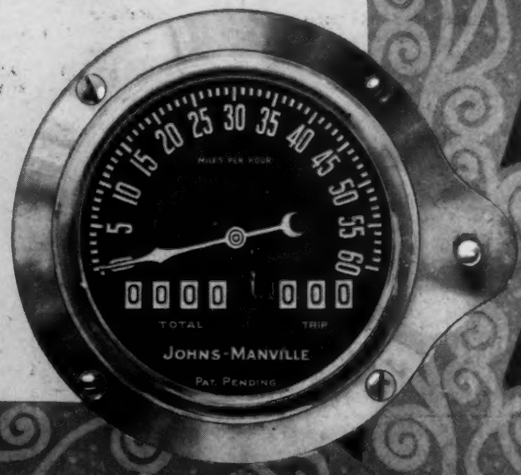
Our guarantee: We will replace without cost any tape found defective, within one year from date of manufacture. Thus we insure your shelf stock.

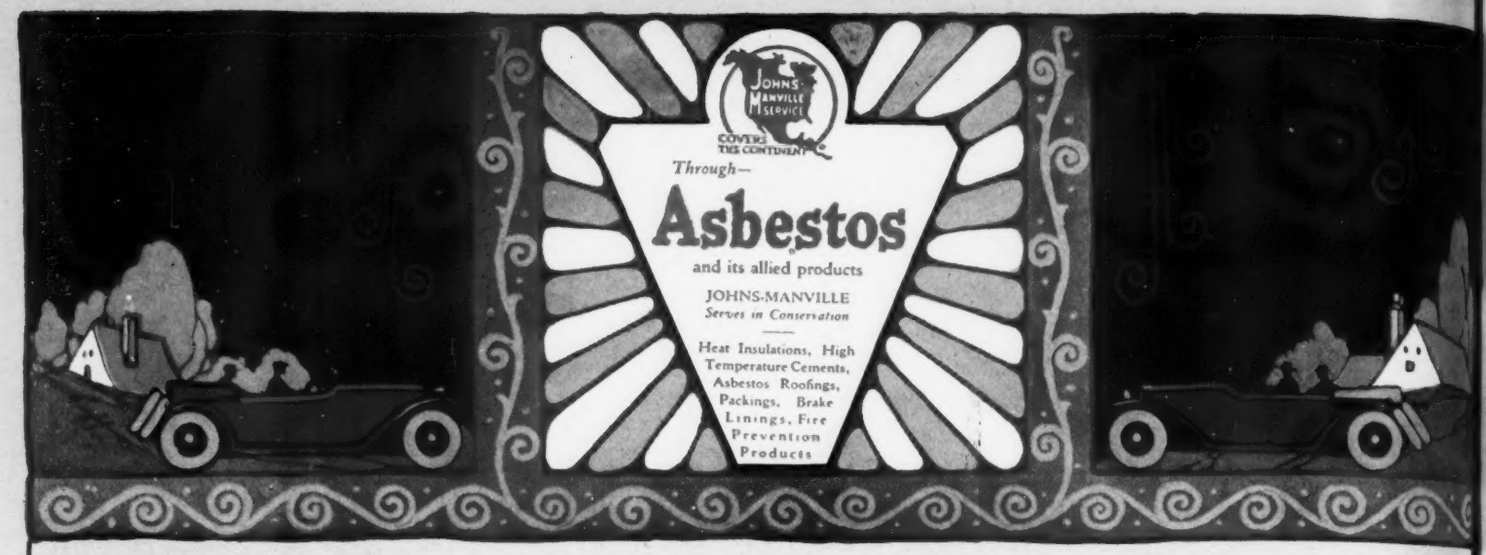
Johns-Manville Automotive Seigelite Sheet Packing

Resists the action of water and oils, and is extremely strong. Very desirable for gasketing water connections, crank case, transmission case, etc.

Johns-Manville Speedometer for the new Fords

No hair springs, magnets or delicate parts to get out of order—simple in construction and unfailing in its accuracy.





Pick your Distributor from this List

Alabama
The I. J. Cooper Rubber Co., Birmingham
Moore-Handley Hardware Co., Birmingham
Johnson Tire & Auto Co., Montgomery

Arkansas
Crow-Burlingame Co., Little Rock

California
Chansior & Lyon Co., Fresno
Chansior & Lyon Co., Los Angeles
Featherstone, E. A., Los Angeles
McCoy Motor Supply Co., Los Angeles
Waterhouse & Lester Co., Los Angeles
Weinstock-Nichols Co., Los Angeles
Western Rubber & Supply Co., Los Angeles
Chansior & Lyon Co., Oakland
Weinstock-Nichols Co., Oakland
Kimball-Upson Co., Sacramento
P. W. Gavin Company, Inc., San Diego
Chansior & Lyon Co., San Francisco
Electric Appliance Company, San Francisco
McCoy Motor Supply Co., San Francisco
Waterhouse & Lester Co., San Francisco
Weinstock-Nichols Co., San Francisco

Colorado
Auto Equipment Co., Denver
Foster Auto Supply Co., Denver
Motor Accessories & Tire Co., Pueblo

Connecticut
Motor Tire Service Co., Putnam
Hessel & Hoppen Co., New Haven

District of Columbia
National Electrical Supply Co.
Rubel, Chas., & Co.

Florida
Baughman Company, Norman G., Jacksonville
Baughman Company, Norman G., Miami
Baughman Company, Norman G., Tampa

Georgia
Alexander-Seewald Co., Atlanta
Cody Co., W. E., Columbus
The I. J. Cooper Rubber Co., Atlanta

Illinois
Automobile Supply Co., Chicago
Chicago Automobile Supply House Chicago
Electric Appliance Company, Chicago
Motor Car Supply Co., Chicago
Tenk Hardware Co., Quincy
Universal Automotive Supply Co., Chicago
Washington Auto Supply Co., Washington

Indiana
Orr Iron Co., Evansville
The I. J. Cooper Rubber Co., Indianapolis
The Gibson Co., Indianapolis

Iowa
Cedar Rapids Pump Co., Cedar Rapids
Sieg Co., Davenport
Herring Motor Co., Des Moines
Repass Auto Co., Waterloo

Idaho
Northwestern Auto Supply Co., Pocatello

Kansas
Massey Hardware Company, Wichita
Southwick Auto Supply Co., Topeka
Watson-Weldon Co., Selina

Kentucky
Peaslee-Gaulbert Co., Louisville

Louisiana
Electric Appliance Company, New Orleans
Shuler Auto Supply Co., New Orleans

Maine
Bigelow & Dowse Co., Bangor
The Farrar-Brown Company, Inc., Portland

Maryland
Auto Supply Co., Baltimore
Coggins & Owens, Baltimore

Massachusetts
Bigelow & Dowse Co., Boston
Linscott Supply Co., Boston
Wetmore-Savage Co., Boston
Motor Tire Service Co., Fitchburg
Bigelow & Dowse Co., Springfield
Duncan & Goodell Co., Worcester
Motor Tire Service Co., Worcester

Michigan
Bowman Gould Co., Detroit
Roehm & Davison, Detroit
Tisch Auto Supply Co., Grand Rapids

Minnesota
Janney-Semple-Hill & Co., Minneapolis
Kelly-Duluth Co., Duluth
Minneapolis Iron Store Co., Minneapolis
Reinhard Bros. Co., Minneapolis
Williams Hardware Co., Minneapolis
Nicols, Dean & Gregg, St. Paul

Missouri
Joplin Supply Co., Carthage
Joplin Supply Co., Joplin
The Faeth Company, Kansas City
Ayers Farmer Auto Supply Co., St. Joseph
Beck & Corbitt Iron Co., St. Louis
Fred Campbell Auto Supply Co., St. Louis
Geller, Ward & Hasner, St. Louis
Rogers & Baldwin Hdwe. Co., Springfield
Joplin Supply Co., Webb City

Montana
Northwestern Auto Supply Co., Billings

Nebraska
Nebraska Buick Auto Co., Lincoln
Western Auto Supply Co., Omaha

Nevada
Nevada Auto Supply Co., Reno

New Hampshire
Thompson & Hoague Co., Concord

New Jersey
Economy Auto Supply Co., Newark

New York
Albany Hardware & Iron Co., Albany
Martin Evans Co., Brooklyn
Strauss Co., Joseph, Buffalo
Barker, Rose & Clinton Co., Elmira
Picard & Co., Inc., A. J., New York
Roberts Electric Supply Co., H. C. Syracuse

North Carolina
Carolinas Auto Supply House, Charlotte

North Dakota
Grant, J. D., Fargo

Ohio
The Penn. Rubber & Supply Co., Akron
C. & D. Auto Supply Co., Cincinnati
The I. J. Cooper Rubber Co., Cincinnati
The Penn. Rubber & Supply Co., Cincinnati
The I. J. Cooper Rubber Co., Cleveland
The Penn. Rubber & Supply Co., Cleveland
The I. J. Cooper Rubber Co., Columbus
The Penn. Rubber & Supply Co., Columbus
Justus & Parker Co., Columbus
The I. J. Cooper Rubber Co., Dayton
The I. J. Cooper Rubber Co., Toledo
The Penn. Rubber & Supply Co., Toledo
The Penn. Rubber & Supply Co., Youngstown

Oklahoma
Joplin Supply Co., Commerce
Severin Tire & Supply Co., Oklahoma City
Joplin Supply Co., Tar River
Tulsa Motor Supply Co., Tulsa

Oregon
Wiggins Company, Inc., Portland
Chansior & Lyon Co., Portland
Waterhouse & Lester Co., Portland

Pennsylvania
General Motor Supply Co., Altoona
The Penn. Rubber & Supply Co., Erie
Front Market Motor Supply Co., Harrisburg
Johnstown Auto Co., Johnstown
The Penn. Rubber & Supply Co., Oil City
Berrodin Rubber Co., Philadelphia
Gaul, Derr & Shearer Co., Philadelphia
Motor Accessories Co., Allentown
Roberts Electric Supply Co., H. C., Philadelphia
Dyke Motor Supply Co., Pittsburgh
Lansing Hardware Co., Scranton
General Auto Supply Co., Lancaster
General Auto Supply Co., Lebanon
General Auto Supply Co., York

Rhode Island
Belcher & Loomis Hardware Co., Providence

South Carolina
Franke Co., Inc., C. D., Charleston

South Dakota
L. & L. Motor Supply Co., Sioux Falls

Tennessee
Southern Auto Supply Co., Chattanooga
The I. J. Cooper Rubber Co., Knoxville
The I. J. Cooper Rubber Co., Memphis
Ozburn-Abston & Co., Memphis
Auto Supply Co., Nashville
The I. J. Cooper Rubber Co., Nashville

Texas
Electric Appliance Company, Dallas
The Southern Equipment Co., Dallas
Tri-State Accessories Corp., El Paso
Meyer Co., Jos. F., Houston
The Southern Equipment Co., Houston
The Southern Equipment Co., San Antonio
McCauley-Ward Motor Supply Co., Waco

Utah
Inter-Mountain Electric Co., Salt Lake City
Motor Mercantile Co., Salt Lake City

Virginia
Owens-Merritt, Danville
Piedmont Hardware Co., Danville
Crump Co., Benj. T., Richmond
Meadows-Price Co., Roanoke

Washington
Chansior & Lyon Co., Seattle
Reynolds & Reynolds, Seattle
Chansior & Lyon Co., Spokane
Holley-Mason Hardware Co., Spokane
Chansior & Lyon Co., Tacoma
Reynolds & Reynolds, Tacoma

West Virginia
Williams Hardware Co., Clarksburg

Wisconsin
Andrae & Sons Co., Julius, Milwaukee
Shadbolt & Boyd Iron Co., Milwaukee
Tisch Auto Supply Co., Milwaukee
Western Motor Supply Co., Milwaukee

CANADA

Alberta
Motor Car Supply Co., Calgary
Motor Car Supply Co., Edmonton
Marshall Wells Co., Limited, Edmonton
The Chapin Co., Ltd., Calgary
Wood, Vallance & Adams, Ltd., Calgary

British Columbia
Wood, Vallance & Leggat, Ltd., Vancouver

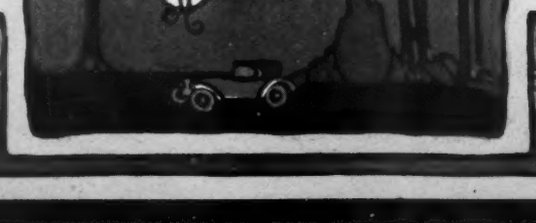
Manitoba
Wood, Vallance, Ltd., Winnipeg

Ontario
Whites, Limited, Collingwood
Wood, Alexander & James, Hamilton
Just Motors Limited, Ottawa
Wood, Alexander & James, Toronto
Bowman Anthony Co., Windsor

Saskatchewan
Wood, Vallance, Limited, Regina

Quebec
Omer De Serres, Montreal

JOHNS-MANVILLE, INC., Madison Ave., at 41st St., New York City
Branches in 64 Large Cities
For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



Proper Cushioning of Motor Truck Will Absorb Road Shocks

By CHARLES GUERNSEY, Chief Engineer Service Motor Truck Company

THE motor truck of today is being designed with the idea of rendering maximum and satisfactory service to its owner, as the more progressive truck manufacturers realize fully that a permanent business can only be built upon a quality foundation.

The ultimate maintenance cost of even a first-class vehicle is so much more than the first cost that for economical operation quality must be paramount, and truck users are rapidly realizing that a few hundred dollars added to initial cost may save thousands in the cost of operation.

Many truck builders, therefore, especially those who have been in business for a number of years and who have realized from actual experience the abuse to which trucks are subjected during a life of say, 200,000 miles, are attempting to build good trucks which will operate over a period of years with a minimum of maintenance expense.

To this end provision is made for easy adjustment or cheap replacement of worn parts. This is shown by the use of adjustable bearings in the engine, in the wheels, in the transmission, at the differential, etc., and by the use of inexpensive removable bushings at such points of lesser wear as brake shafts, spring eyes and steering connections.

Must Give More Attention to Shocks and Strains

It is my firm belief, however, that many designers are still losing sight of the factor of shocks and strains. A truck goes to the junk heap for some one or a combination of these three reasons:

(1) Obsolescence of design.

(2) Wear on vital parts which cannot easily be replaced.

(3) Failure of parts due to shock loads, fatigue or crystallization.

In these days of changing fuel conditions and rapid development along all lines, the first item is of some importance, although it certainly is not responsible for more than a very small percentage of truck mortality. Item two is being safeguarded against by all high class builders as previously outlined, to a greater or lesser degree. Failures from this cause are, of course, largely in the hands of the operator, as lubrication and adjustment are essential in minimizing failures from this cause.

The important factors in truck life, however, which are being overlooked, are breakages, due to shocks and fatigue, which are covered under third heading.

Metal parts of all kinds undergo structural changes when in severe use. This results sooner or later in the failure of such vital parts as crankshafts, connecting rods, clutch shafts, propeller shafts, transmission shafts, axle drive shafts and frame members. This failure can be very materially reduced by so cushioning the truck as to eliminate the brunt of shocks and strains arising in its operation.

The stresses and strains set up in a motor truck chassis and to which all trucks are subjected may be classified under one or more of the following headings:

1. Stresses due to the load.
2. Twisting strains due to road inequalities.
3. Shocks caused by rough roads.
4. Driving shocks and strains.
5. Braking shocks and strains.

Load Stresses

All load-carrying parts, such as frame, springs, body, axles and tires are affected by load stresses and while there are some shocks and strains arising from this source due to the pitching from side to side of the load, on the moving truck, these stresses are in general of a more or less static nature.

Road Strains

The strains covered under the load of road inequalities are of a twisting nature and are caused by diagonally opposite wheels dropping into low places in the road, which, with the conventional construction, causes a weaving or racking of the frame.

The springs usually supplied cannot take up all these inequalities, the limit of action for the conventional front spring being about three inches, with about five inches being the limit for a rear spring. The result is that, if the frame were perfectly rigid with a conventional suspension, diagonally opposite wheels cannot pass over obstructions more than four inches high without tending to lift the other wheels.

Manufacturers generally make the frames somewhat flexible to permit the wheels to conform to these road inequalities; in fact, it is practically impossible to make frames which will be rigid under these conditions.

Excessive flexibility, however, has certain drawbacks in permitting a twisting and weaving of the body, cab and hood, and in throwing parts out of line. To counteract this it is necessary to use three-point suspensions on engine, transmission, etc.

Road Shocks

This type of shock undoubtedly does more damage than any of the others, for here are included the terrific vibrations set up by cobblestone pavements, the short, rapid impacts due to sharp holes and bumps in the road, shocks set up by car tracks, etc.

The vibration set up throughout the truck by these shocks result in a tendency to loosen bolts and connections, to crack soldered joints, to break copper tubing and to crystallize all sorts of parts.

Road shocks, if not properly absorbed, will sooner or later cause fatigue, regardless of the quality of steel or heat treatment used in manufacture. These shocks can, however, be largely reduced by careful design of springs, the use of live or resilient frame members, as, for instance, wood or pressed steel.

Naturally the tires are one important factor and if conditions are such that pneumatics can be satisfactorily used, they will, in a large measure, furnish a solution of the difficulty.

It has been shown that a pneumatic tire, loaded to rated capacity, deflects eleven times as much in going over an ordinary obstruction as does a solid tire of the same capacity which has one inch of live rubber.

The impact force is directly proportionate to the deflection.

Even with new solid tires the impact forces are three times greater than with pneumatics, which means that a pneumatic-tired truck, running 24 miles an hour, will not set up any more severe stresses than the same truck on new solid tires, running eight miles an hour.

Should be Designed to Cause Least Possible Damage to Roads

Truck makers should so design their trucks that they will cause the least possible damage to the roads over which they travel and remember that the truck which best accommodates itself to the road will, in turn, cause the least injury to the road, for wear and tear on highway surfaces is largely a matter of impact.

This statement may lead to the belief that I am an advocate of pneumatic tires. Such is not the case. I am neutral, for while the advantages resulting from the use of pneumatics are of great importance, I realize that there are disadvantages which must also be taken into consideration and this subject is a little beyond the scope of this article.

It is certain, however, that the use of live, resilient frame members, improvement in spring suspension, improvement in tires and better design in other ways will greatly reduce the damage resulting from road shocks. As I see it, the question is not so much one of eliminating the shock as of reducing its intensity, probably by distributing the force of impact over a greater length of time.

If a man jumps to the pavement from a fourth story window he is very apt to be killed or suffer serious injury. Should he jump into a life net he is not harmed. The force is the same in both cases, but in the latter the impact is distributed over a greater length of time.

Driving Strains

Severe strains are set up in all parts of the driving or power line by the constant acceleration and deceleration of the driving wheels in passing over road obstructions.

Strains of this kind always arise when the clutch is suddenly engaged. In fact, since the gasoline engine does not deliver a steady torque, every explosion in the engine delivers a hammer blow through the driving line, affecting crankshaft, engine bearings, clutch shafts, universal joints, axle parts, driving shafts, gears, bearings, etc. Whether these blows have the effect of a hard steel hammer or a soft rubber hammer depends upon the absence or presence of cushioning features.

Parts, in a properly designed vehicle, are not broken by the steady torque or weight load. It is the exceptional shock load which causes stresses beyond the limit, eventually ending in failure.

Braking Strains

We have still another type of shock which is simply the reverse of driving or torque shocks and strains, namely braking strains. Various parts are affected, according to the design of trucks and depending also upon the engagement or disengagement of the clutch when the brakes are applied.

Vibrations caused from shocks of these various kinds is the most destructive factor which must be overcome in motor truck design. That designer who succeeds in reducing motor truck shocks and stresses can make a lighter vehicle and also have a more satisfactory product than can possibly result from heavy, inflexible design, assuming, of course, an equal standard in other respects.

There are already many features of design which help to some extent in achieving this point.

We have already considered the possibilities of tires.

Great improvements may be expected in spring suspension.

The Hotchkiss drive has been a factor in reducing shocks and stresses, particularly in the rear axle, rear wheels, tires and driving parts. The slight displacement of the axle which this construction permits takes the peak off of the blows received from the road.

Another factor which is of considerable value is the use of pressed steel or other shock-absorbing material for the frames.

The flexible fabric universal joint has been found very valuable in absorbing shocks in the driving line. Engine vibrations are absorbed before reaching the transmission and axles, while road shocks cannot reach the engine. Wear and breakage are in this manner reduced in all torque transmitting parts.

Engine vibrations can be materially reduced by proper mounting. It is perfectly possible to so mount an engine that slack, with consequent vibration, cannot develop during the life of a truck.

The use of a stiff spring on the engine leg bolts and on the trunnion bearing cap at the front point of suspension, in the case of a three-point mounting, for instance, will hold the engine tightly in place and at the same time permit the usual weaving and twisting as required with a conventional spring suspension.

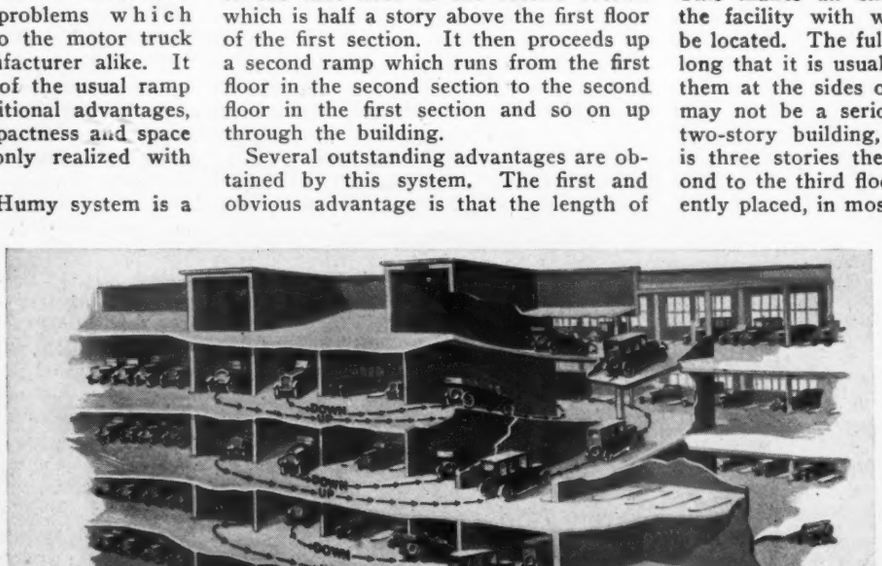
A truck, properly cushioned, will have less wear and tear, less shock breakage and will carry its load with the minimum of damage. The truck must conform to the road. It cannot be so built as to resist the punishment of the road. It must be capable of receiving, absorbing and nullifying road shocks.

A New Ramp System Solves Inter-Floor Transportation Problem

THE d'Humy Motoramp System offers a solution to inter-floor transportation problems which should appeal to the motor truck dealer, user and manufacturer alike. It offers the advantages of the usual ramp design and some additional advantages, yet possesses the compactness and space economy heretofore only realized with elevator installations.

The basis of the d'Humy system is a staggered floor construction in which the building, be it a garage, warehouse or factory, is divided into two vertical sections in which the floors of one section come halfway between the floors of the other section. The ramps are situated so as to communicate between the two sections. Because of this simple modification in building design the ramps rise a half a floor at a time instead of a whole floor. By this change several outstanding advantages are obtained. A truck proceeds up through the building a half a story at a time, first mounting the ramp running from the second floor in one section to the first floor in the second section which is half a story above the first floor of the first section. It then proceeds up a second ramp which runs from the first floor in the second section to the second floor in the first section and so on up through the building.

Several outstanding advantages are obtained by this system. The first and obvious advantage is that the length of the ramp is half that ordinarily required. This makes an enormous difference in the facility with which the ramp may be located. The full length ramps are so long that it is usually necessary to place them at the sides of the building. This may not be a serious shortcoming in a two-story building, but if the building is three stories the ramp from the second to the third floor cannot be conveniently placed, in most cases, over the first ramp; in fact, it is usually necessary to locate it on the opposite side of the building from the first ramp. This means that convenient connecting passageways must be maintained between the two ramps. Often this interferes seriously with the best truck arrangement for the second floor. Furthermore, the lack of flexibility in locating the ramp invariably offers an additional difficulty in obtaining the best efficiency of truck arrangement. In buildings of more than three stories these difficulties are multiplied. On the other hand, by using a



Cutaway View of a Building Employing the d'Humy Motoramp System

half length ramp, it becomes available for almost any location in the building and the new system, therefore, can be placed at any convenient point along the dividing wall separating the two sections of the building. In fact, the location of the d'Humy system offers no more difficulties than the location of an elevator. The large size of the ordinary ramp makes its use out of the question in buildings as small as 100 ft. by 100 ft. if they are more than two stories, but the new ramp lends itself admirably to a building design of any number of floors even though it occupies a plot 100 ft. by 100 ft. or perhaps a little less.

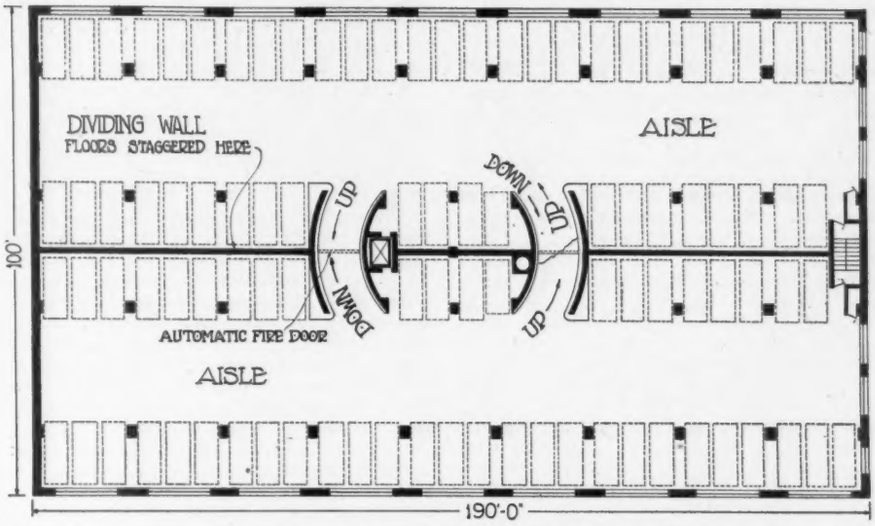
Also Serves as Connecting Passageways

The unusual space economy over the ordinary type lies in the fact that in the d'Humy system the ramps also act as connecting passageways between the two sections of the building. For the moment let us consider a building of ordinary construction; that without the staggered floor feature. In such a building connecting passageways would be required between the car aisles in the two sections. It is these passages which also act as ramps in the d'Humy system and this is why the use of the d'Humy ramp is more economical of space than the ordinary type. It permits a compact arrangement of ramps, an important feature in many building designs.

The advantages of this construction in motor truck, sales and service buildings and motor truck garages, should be obvious. It affords a quick, easy means of driving from floor to floor and is superior to the ordinary type of ramp in that it requires less space and can be more compactly and flexibly arranged. In common with other types of ramps it avoids congestion of traffic during rush hours. It avoids the high initial cost of heavy upkeep expenses of elevators. At the same time it requires very little more floor space than an elevator.

Reduces Expense of Rehandling

The system is admirably suited to a garage and warehouse combination, for it permits the use of the ramp system in not only the garage part of the building but also up through the warehouse section, so that trucks may receive or discharge goods at any floor, a fact which should considerably reduce expense of handling material. For example, a loaded truck with goods for various floors may be driven from floor to floor so that the material may be deposited conveniently to the places where it is to be stored. Likewise, in loading a truck, it may be moved from floor to floor to pick up the goods wherever they happen to be. This feature should save much labor in handling material. It should be pointed out that in warehouses there are two methods of using the ramp —one is to provide aisles throughout the building which are sufficiently large to permit the truck to be driven to any point. However, in many warehouses this plan may not be desired, in which case it is advantageous to provide loading space adjacent to the ramp on each floor. Ramps of the ordinary type are usually out of the question for a warehouse because of their large bulk.



Showing the Systematic Manner in Which Commercial Cars Can be Quartered on One Floor of a Building Employing the Staggered Ramp System

Observe the location of, and the comparatively small space required by, this ramp. It can be efficiently used in buildings as small as 100 x 190 ft.

The d'Humy Motoramp System is protected by patents which are owned by the Ramp Buildings Corp., 50 Church St., New York City. This company issues a license for the use of the d'Humy System, charging a nominal rate per sq. ft. of floor area. The company maintains a staff of engineers who are available for consulting work and offers their services at no extra charge in order to enable clients to obtain the most efficient application of the d'Humy System to any particular building. In addition the company is ready to give advice as to the most efficient building layout to use.

New Bus Companies Are Sales Possibilities

New motor truck and bus companies are springing up all over Illinois. That state promises to be a profitable field for the men who sell these vehicles. The Staunton-Livingston Motor Transportation Company has been organized to operate motor vehicles between Staunton and Gillespie via Sawyerville and Benld. Another is the Gillespie-Wilsonville Motor Bus Company to operate between those points via Mt. Clare. A third is the Benld-Wilsonville Motor Transportation Company to operate between Benld and Wilsonville, via Gillespie. A fourth is the Beardstown-Rushville Motor Bus and Truck Company to operate a fifteen-mile line for passengers and freight between Beardstown and Rushville, a territory inadequately served by the railroads.

Pierce-Arrow Statement

President G. W. Mixer, of the Pierce-Arrow Motor Car Co., Buffalo, N. Y., has made public the financial statement of his firm for the year 1920. It is particularly gratifying in that the net earnings after all charges, taxes and depreciations allowances, in face of the recent depression are $1,769,914 or more than twice the annual preferred dividend of $800,000.

Here is a Modern "Black Maria" for Transporting Prisoners, a Two-Ton Federal Truck Operated by the Bronx County Jail, New York City

Personals

W. A. Beardsley has been appointed district sales manager for the Winther Motor Truck Co., of Kenosha, Wis. He will cover the territory of Washington, Oregon and Idaho.

George J. Blanton, who for the past four years has been connected with the Engineering Sales Department of the Chain Belt Co., Milwaukee, Wis., has been made New York district manager with offices at 50 Church St., New York City.

T. B. Blakiston, formerly district sales manager for the southeastern territory of the American Hammered Piston Ring Co., is now assistant general sales manager of that firm, replacing J. H. Quackenbush.

B. W. Collins, representing the Casey-Hudson Co., of Chicago, manufacturing screw machine products, has opened an office at 405 Book Bldg., Detroit, Mich., as manufacturers representative.

Bob Crowthers has resigned from the Gary Motor Truck Co., Gary, Ind., and is advertising manager and assistant sales manager of the Master Trucks, Inc., 3132 Wabash Ave., Chicago.

E. A. Davenport, formerly sales manager of the Texas Motor Car Association, Fort Worth, Tex., has returned to the Elgin Motor Car Corporation, Argo, Ill., as southwestern zone supervisor covering Texas territory.

Stephen A. Douglas is announced as general sales manager of the Wm. R. Johnston Mfg. Co., 451 East Ohio St., Chicago, Ill. Wm. R. Johnston will devote his time to the production and development end of the business.

Frank J. Flynn has been appointed service manager of the Connecticut Telephone and Electric Co., of Meriden, Conn.

Victor Greiff, E. E., has completed his work of installing a research laboratory for the study and development of electrical automotive equipment for the American Bosch Magneto Corporation. The laboratory is said to be one of the most complete of its kind in the country.

G. H. Harris, secretary-treasurer of the Troy Wagon Works Co., Troy, Ohio, has resigned. He is succeeded by H. H. Tamplin. W. J. Murray was recently appointed general manager of the company.

R. C. Huddle has been appointed purchasing agent for the O. Armleder Co., Cincinnati, Ohio, to fill the vacancy caused by the resignation of W. R. Hill.

Dick Jemison has been appointed advertising and sales promotion manager of the Oldfield Tire Co., Akron, Ohio. He was recently in charge of sales promotion of the Miller Rubber Co.

A. B. Jones, formerly vice-president of the B. F. Goodrich Co., has been elected president of the Kelly Springfield Co. He succeeds F. A. Seaman, acting president.

L. M. Klinedinst, who for the past sixteen years has been intimately associated with the Timken Roller Bearing Co., has been made assistant manager of sales. H. J. Porter continues to serve as general manager of sales.

Edward W. Kruspe, formerly of the Standard Motor Truck Co., has been appointed midwest manager of sales for the Acason Motor Truck Co., Detroit.

George C. McMullen, a former representative of the Timken-Detroit Axle Co., as well as the Timken Roller Bearing Co., for the Pacific Coast territory, will devote his entire time to sales engineering for the latter company. He will maintain offices at Room 450, Monadnock Bldg., San Francisco, Cal.

J. P. Matthews, formerly purchasing agent of the Mason Tire & Rubber Co., Kent, Ohio, and last year its Far Eastern representative at Singapore, was recently elected secretary and general manager of the Midwest Rubber Manufacturers' Association, headquarters 332 Michigan Ave., Chicago Ill.

Edgar E. Muller, former representative for the Cleveland Varnish Co., Cincinnati, Ohio, has been elected vice-president of the R. A. Becker Varnish Co., of Cincinnati, manufacturer of black and color automobile baking enamels.

C. B. Rose has been appointed general manager of the Moline Engine Co., of Moline, Ill. He will also bear the title of vice-president.

E. A. Taylor has been appointed works manager in charge of production of the Liberty Motor Car Co., Detroit, Mich. He was formerly production manager of the Pierce-Arrow Motor Car Co.

C. A. Norland has been appointed director of sales of the Norlund Novelty Co., Williamsport, Pa., to succeed Thomas E. Nokes, resigned.

Robert E. Page, formerly field representative of the Nelson Motor Truck Co., Saginaw, Mich., has been appointed general sales manager of the O'Connell Motor Truck Co., Waukegan, Ill.

W. F. Taylor has been made director of eastern sales for the Acason Motor Truck Co., Detroit, Mich., and will have headquarters at 1482 Broadway, New York. Mr. Taylor was formerly with the Federal Truck Company.

S. T. Thompson, who was for several years purchasing agent for the Duplex Engine Governor Co., Ind., No. 36 Flatbush Ave., Extension, Brooklyn, N. Y., through the resignation of J. K. Cravens, has succeeded him as director of sales.

Fred R. Wilhelmy, for many years with the Standard Parts Co., and its predecessor, the Standard Welding Co., in the financial and credit end of the business has announced his resignation. His future plans have not been divulged.

Frank B. Willis, until recently sales manager of the Kelly Springfield Truck Co., has been announced as sales manager of the Duplex Truck Co. Lansing, Mich.

Earl L. Wood, formerly of the J. I. Case Plow Co., was elected director and vice-president in charge of the Kansas City territory of the Horse-Shoe Rubber Co., Kansas City and St. Louis.

Factory News

The Black & Decker Mfg. Co., reports net sales of the company to be nearly 40 per cent greater in 1920 than in 1919.

J. C. Widman & Co., Fifteenth St. and Kirby Ave., Detroit, manufacturer of automobile equipment, has increased its capital from $250,000 to $350,000.

The Hudson Motor Specialties Co., of Philadelphia, manufacturer of the Hudson crank case repair arm for Fords, has been granted a design patent on "Crank Repair Arms."

The Triangle Motor Truck Co., St. Johns, Mich., reports an order for 3,750 trucks, 750 of which are to be delivered in 1921. The plant having been closed for a few weeks is now in operation.

The Robert H. Hassler Motor Co., Indianapolis, Ind., in view of a steadily increasing volume of sales is planning a large factory edition in the near future.

The Bollstrom Motor Inc., St. Louis, Mo., has effected a separation from the Bollstrom Engineering Co., a former promoting company. The St. Louis firm is a truck manufacturer recently organized.

The Wellman Products Co., 1444 East 49th St., Cleveland, Ohio, has made arrangements to double its present floor space, necessitated by the steady increase of its business.

The Acme Motor Truck Co., Cadillac, Mich., has re-elected its board of directors and announces that shipments will be resumed and production increased at once.

The Flinchbaugh Machine Co., of York, Pa., is now in production on the York cylinder reboring tool. The product is marketed through the Detroit Consolidated Sales Co., Inc., 2631 Woodward Ave., Detroit, Mich.

The No-Leak-O Piston Ring Co., Muskegon, Mich., reports that is has secured an order for a quarter of a million piston rings to be delivered at once. The order brings the factory almost back to normal production.

William Wield

Who succeeds F. H. Ayers as Sales Manager of the Fisk Rubber Co. Mr. Ayers is now director of sales of the company.

H. M. Daniels

Manager of the New York branch of the Four-Wheel-Drive Auto Co., Clintonville, Wis., who has been the company's foreign representative.

L. A. Brown

The new president of the Grand Rapids Tire and Rubber Corp., Grand Rapids, Mich., who was formerly district manager.

A. D. Williams

In charge of sales for "X" Laboratories, manufacturer of "X" liquid, with New York offices at 25 West 45th St., New York City.

The Electric Auto-Lite Corporation, Toledo, Ohio, has called back to work nearly 200 employes, making about 400 employed out of the normal 3000.

The Wainwright Manufacturing Co., Connersville, Ind., through the new general manager, Paul J. Barnard, announces the following new traveling representatives: H. E. Witherspoon, New York City; Jack Hundt, Chicago; Jack Uhl, Indianapolis; Harold L. Hardvich, San Francisco and W. H. Reeves, factory.

The Hood Rubber Co., Boston, Mass., due to increasing orders for Hood tires, has found it necessary to increase its production. The company faces an exceedingly bright outlook for the year.

Removals and Trade Changes

The Chilton Service Offices for the Chilton publications in the Cleveland district are now located at 966-968 Hanna Bldg., Cleveland, Ohio, under the direction of R. E. Clark.

The Southern Motor Co., of Columbia, S. C., has opened its new building costing $125,000. The firm handles White trucks and several passenger car makes.

The Moline Body Corporation, is the new name for the Wright Carriage Body Co., of Moline, Ill., the name having been changed because the company is now manufacturing motor vehicle bodies, exclusively.

The Hoosier Clutch Co., Muncie, Ind., is the name of the Hoosier Auto Parts Co. The firm will continue to manufacture its high-grade single plate clutch for automotive use.

The Automatic Safety Tire Valve Corp., is now handling the sale of its own products. Heretofore Asch & Co., 16 West 61st St., New York, was its direct representative.

The Dearborn Truck Co., whose general offices were formerly located at 2015 South Michigan Ave., has recently moved into larger quarters, situated at 2911 Indiana Ave., Chicago, Ill. The city sales offices have been consolidated with the general offices.

New Incorporations

The Monarch Auto Supply Co., with a capital of $100,000 has been chartered at Charlotte, N. C. to deal in automobiles and automotive accessories.

The Evans-Cooke Manufacturing Corp., has been chartered at Wilmington, Del., to manufacture automobile springs. The firm is capitalized at $100,000.

The Hansen Windshield Cleaner Co., Inc., Manhattan, N. Y., has been incorporated at $300,000 to manufacture windshield cleaners. H. P. Hansen, 360 Main St., Orange, N. J., is the incorporator.

The International Automobile Accessory Co., 243 Washington St., Jersey City, N. J., has been incorporated for the purpose of manufacturing automobile accessories, supplies, etc., with a capital of $150,000.

H. E. Willingham Co., Inc., Richmond, Va., has been chartered to deal in automobiles and accessories with a capital of $50,000. H. E. Willingham of Norfolk is president, and H. L. Flippen of Richmond, secretary.

The Hugh Company has been formed with a plant at 163 Adams St., Buffalo, N. Y., to manufacture steel metal products for the automotive trade. The firm is headed by Ewart C. Hugh who, until recently, was the special European traveling representative of the All American Truck Co. of Chicago.

The Durant Building Corporation has changed its corporate name to the General Motors Building Corporation. A similar change is made in the name of the Durant Building, Detroit, to that of the General Motors Building.

Literature

The Story of Motor Oils has been released by the Atlantic Refining Co. It is an attractively prepared booklet on the science of lubrication. There are a number of paintings by Horler depicting the various plants of the Atlantic company which greatly enhance the interest in the volume.

Export Packing, a volume on the problems of packing for export shipment based on the practice of successful exporters and written by C. C. Martin, should be of value to all exporters of automotive equipment. The book is published by the American Exporter, 370 Seventh Ave., New York City and sells for $10.00.

The Auto Electricians Guide, issued by the Michigan State Auto School, 3729 Woodward Ave., Detroit, Mich. is a compilation of automotive wiring diagrams. The guide is complete in two volumes and contains over 1700 different wiring diagrams ranging from 1906 to 1921.

The S. A. E. Handbook (Revised edition of Vol. I.) issued by the Socley of Automotive Engineers, contains a number of helpful additions such as physical characteristics of S. A. E. steel, nomenclature division report, etc., the details in full for the S. A. E. standards, and recommended practices. Address the Society of Automotive Engineers Inc., 29 West 39th St., New York City.

Obituary

Thomas E. Foley, vice-president of the Transcontinental Motor Truck Corporation, of Buffalo, N. Y., well known in the motor truck world, died at the Morrison Hotel, Chicago, February 2. Mr. Foley was attending the Chicago automobile show.

W. H. D. Totten, director of the United States Motor Truck Co., and secretary of the Stewart Iron Works Co., both of Cincinnati, Ohio, both of Cincinnati, Ohio died at his home in Cincinnati January 20th. His winning personality had earned many a friendship during the many years he spent in the iron and automotive industries.

W. H. Van Dervoort, president of the R. & V. Motor Co., Moline, died Friday evening, February 25th. His death marks the passing of a pioneer in the automotive industry, a man who has been responsible for many features in the advance of gas engine design. At one time Mr. Van Dervoort was president of Society of Automotive Engineers.

New Agencies

The Miller Rubber Co., of Akron, Ohio, has opened a direct factory tire branch at 2220 Farnum St., Omaha, Neb.

The Harper-Libby Co., Inc., 801 Beacon St., Boston, Mass., has been appointed distributor of Winther motor trucks in eastern Massachusetts.

The Celluloid Zapon Co., manufacturer of lacquers and lacquer enamels, has opened up a Philadelphia office at 520 Walnut St., in charge of B. O. Clausen.

The Armstrong Rubber Co., of Garfield, N. J., announces that it has opened a factory branch at 1414 South Michigan Blvd., Chicago, with F. A. Winship as manager of sales.

The Armleder Motor Truck Co., of New York, Third Ave., and Butler St., Brooklyn, N. Y., is the new branch for Armleder trucks, under the direction of John S. Hyatt.

The Fulton Co., 75th and National Ave., Milwaukee, Wis., has recently taken over the sale of Rearvu Mirrors manufactured by the Automotive Accessories Inc., of Kokomo, Indiana.

The Apollo Tire and Rubber Co., Cleveland, Ohio, has sales rooms at 3154 Cass St., Detriot, Mich., to handle that territory. James B. Clay is president of the Detroit branch.

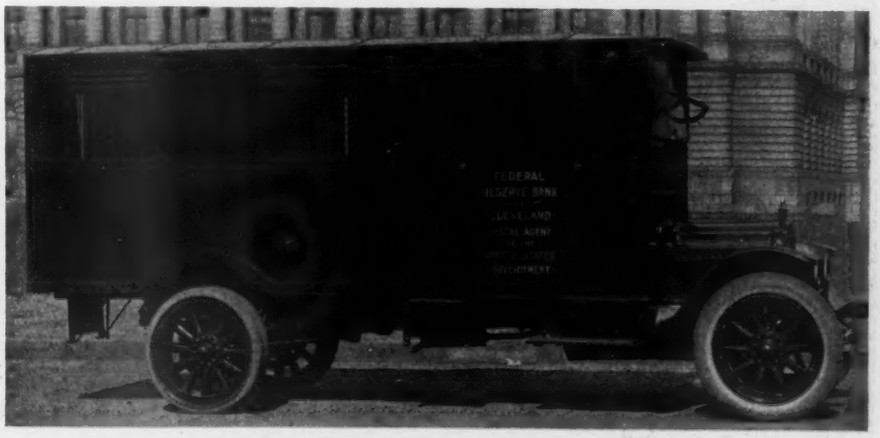
The United States Motor Truck Co. of Cincinnati has established a new distributing connection for the Kansas City district to be known as the United States Truck Sales Co., of Kansas City.

The Clydesdale Motor Truck Co. has opened a factory branch at 437 Fifth Ave., New York City, show room and service station being located at 600 East 20th St., with Geo. B. Godfery in charge as manager.

K. R. Wilson, 16 Lock St., Buffalo, N. Y., meeting with much success with the introduction of the new Wilson combination machine, have made exclusive distribution arrangements with Whittemore Sim Co., of New York City, for the metropolitan district.

The General Motors Truck Co. has opened a branch for sales and service at 1000 Union Avenue, Memphis. J. N. Magna, long identified with the automotive industry in the east, at St. Louis and elsewhere, is manager; O. Morsman is dealer sales manager and J. K. Dobbs is retail manager.

The Sealtype Distributing Co. of New York, 230 West 52nd St., will distribute Sealtyte leak-proof tubes, an automobile inner tube filled with a plastic gum liner guaranteed for 10,000 miles.



New Armor-bodied Job Mounted on a White Chassis, Used by the Federal Reserve Bank of Cleveland to Gain Protection as Well as Dispatch in the Transfer of Money and Valuable Papers Between Banks, Railroad Stations, Express and Post-Offices.

SELL ROAD CONTRACTORS THIS IDEAL DUMPING EQUIPMENT

A half billion to be spent on roads during 1921.

Part of this will be spent on equipment.

The motor truck dealers who will sell contractors this equipment will sell more than a chassis. They will supply complete units, specially designed for road contracting work.

Be prepared to go after this market. Heil Dump Bodies, specially constructed for contractors, and the Heil Hydro Hoist, constitute the ideal equipment for road building. The dealer who advocates their use will have an immense advantage over competitors.

Let us investigate the reason: Most contractors prefer short wheelbase trucks, easy to manœuver. Hoisting equipment that occupies loading space is not desired. The Heil Hydro Hoist occupies no space behind the cab. It is suspended under the frame. Its use permits contractors to utilize all loading space.

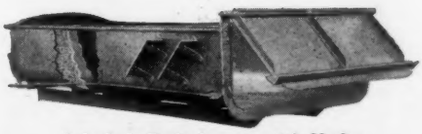
Then it is simply constructed with few working parts that seldom get out of order. No time lost for repairs.

Heil Dump Bodies, like the Hydro Hoist, are specially designed to give the most efficient service.

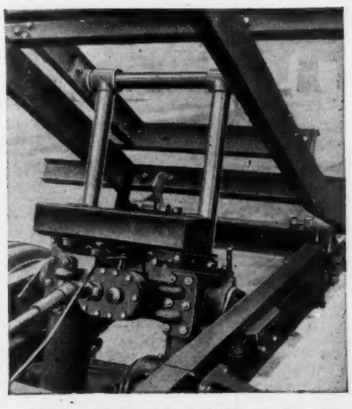
Get the Heil line behind you and then make a determined effort to supply road contractors with the proper kind of equipment.

The results will amaze you!

Our Highway Folder No. 115 has just been printed. Write for your copy and 1921 Price List, which gives capacities, weights and prices. It will help you sell the contractor.



Ashphalt Body for use with Hydro Hoist. Shows inner steel shell, layer of Asbestos and outer steel shell. Body tapers out toward the rear.



Hydro Hoist mounted on chassis frame. Notice its simple construction. There are no pipes to leak. All cables, pulleys, rollers and the like are eliminated.

THE HEIL CO.

1143 Montana Avenue **Milwaukee, Wisconsin**

DISTRIBUTORS

The Motive Parts Corporation, 136 West 55th Street, New York City
The McKenna Company, 1851 East 38th Street, Cleveland, Ohio
The Heil Company, 2718-20 Wentworth Avenue, Chicago, Illinois
The Heil Northwestern Sales Co., Pelham and St. Anthony Avenues, St. Paul, Minnesota
The Modern Vehicle Company, 437-451 Fourth Street, San Francisco, California

The SIGNAL Has Long Life

The length of life of Signal motor trucks has never been definitely determined because time alone will tell the limit of their strength.

Although the Signal Motor Truck Company was one of the early pioneers in the industry and has been building motor trucks for eight years, many of the first models built are still doing daily duty.

And the fact that Signal Trucks have earned a reputation of being "always on the job" throughout their long life makes the purchase of a Signal pay continuous dividends.

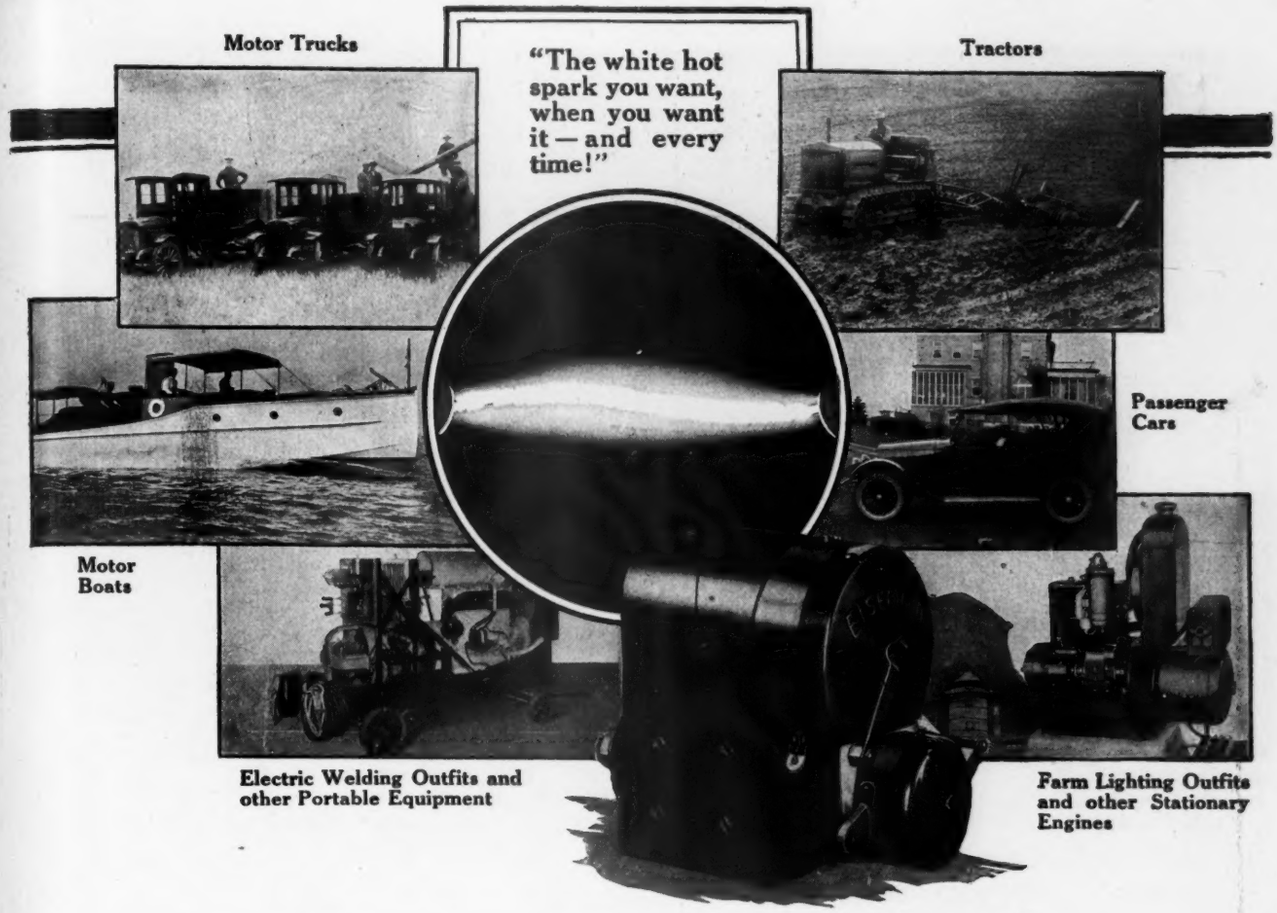
Such truck service naturally tends to make the Signal franchise an exceptionally valuable one.

Have you considered the Signal possibilities in your territory?

1 to 5 Ton Capacity

SIGNAL MOTOR TRUCK CO.
DETROIT

SIGNAL



When *dependability* is put foremost EISEMANN Ignition is the choice—

WHEN you see an engine equipped with Eisemann Ignition you may know that its makers recognize their responsibility to the user—and to *you*, the dealer. Ignition is the *heart* of the engine. When a truck or tractor maker provides Eisemann—the ignition that *won't* lie down—you can safely assume that every part of his product measures up to the same high standard.

THE EISEMANN MAGNETO CORPORATION

32 Thirty-third Street, Brooklyn, N. Y.

Detroit:
429 Willis Avenue, W.

Chicago:
1469 So. Michigan Avenue

YOU DEALERS

Should Have a Larger Profit This Year—We Have Solved That Problem for You!

Haven't you thought long and hard about that very thing? Isn't it a question uppermost in your mind right now?

But how? *First*—By having a line of trucks to offer that represents the biggest dollar-for-dollar value money can buy. *Second*—By being able to make your prospects a proposition that no other dealer can beat, and one that few, if any, can equal. *Third*—By having something to clinch sales that you are now missing.

These three important factors in sales have been worked out by us in our new merchandising policy in a manner that will impress you tremendously. It is the greatest advance in motor truck selling in years—a veritable battering ram in the hands of any live-wire dealer.

It means more sales, bigger profits. It means so much to you that you simply cannot afford to delay in getting all of the details of the proposition.

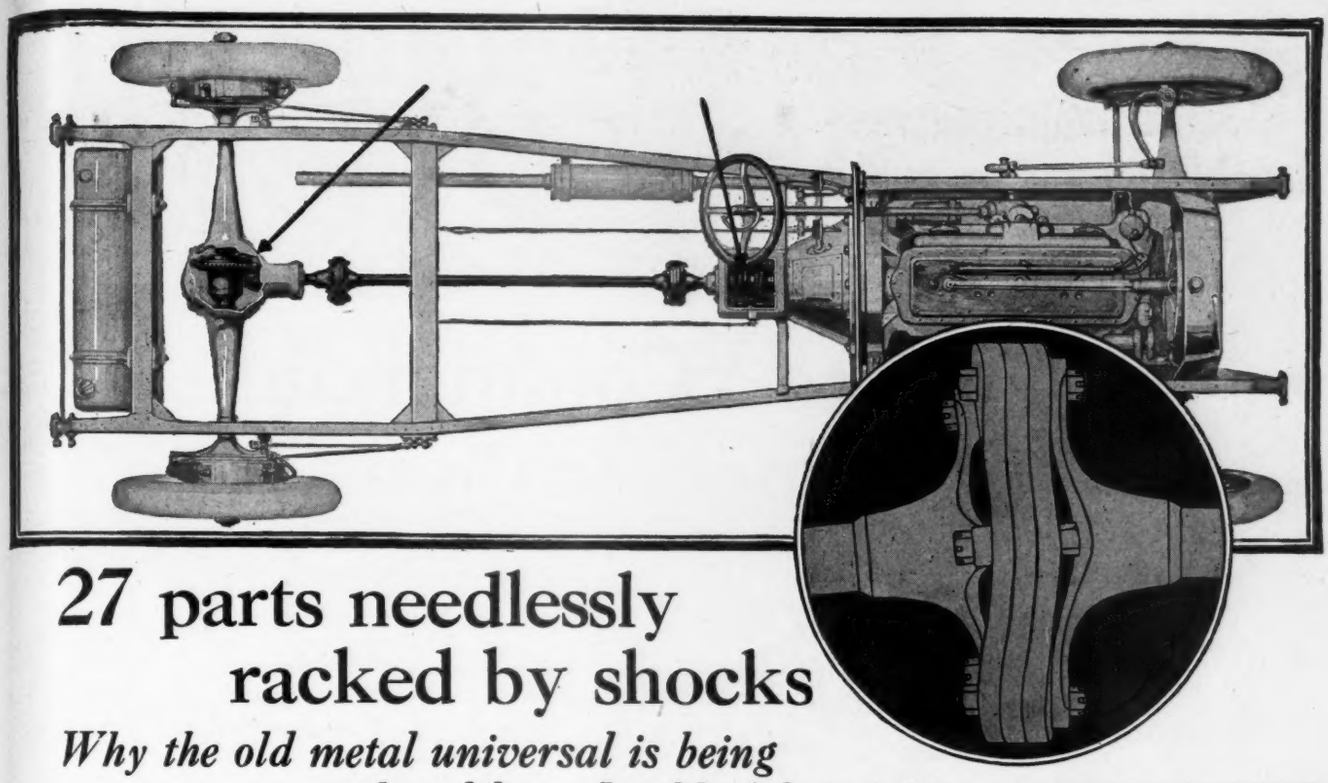
It is not for publication—***but for you personally.*** Serious-minded dealers who are inspired more out of genuine interest than curiosity are urged to communicate with us at once.

DAY-ELDER MOTORS CORPORATION, NEWARK, NEW JERSEY, U. S. A.

This is an Actual, Not Fanciful, Photographic Reproduction of Our Plant

DAY-ELDER

WORM-DRIVE MOTOR TRUCKS



27 parts needlessly racked by shocks

Why the old metal universal is being replaced by a flexible fabric joint

SEVEN gears and 6 bearings in the transmission, 8 gears and 6 bearings on the rear axle—in the average car every one of these delicate parts is subjected to the constant damaging shocks transmitted by metal universal joints.

Metal joints fail to cushion the jolts of starting, of suddenly shifting gears, of driving over rough roads. They transmit every jolt and jar.

More than 50 manufacturers have solved this problem by substituting the Thermoid-Hardy flexible fabric joint for the old-fashioned metal universal.

The Thermoid-Hardy Joint is based on a new principle of construction. Having no metal-to-metal wearing surfaces, it cannot wear loose or cause friction. It requires no constant attention—no lubrication of any kind.

Fanwise construction

The remarkable strength and elasticity of the Thermoid-Hardy Joint are due to its special construction. The joint is made up of discs—every disc built up from layers of long strand Sea Island cotton duck and the highest grade friction rubber compound. Each layer of fabric is placed so that the threads of fabric run in a different direction. The layers are welded together under tremendous hydraulic pressure so that the disc becomes one compact homogeneous mass.

This construction makes the Thermoid-Hardy so strong that it has actually stood a test that twisted a two-inch 10-gauge steel propeller shaft. In many cars the Thermoid-Hardy has run more than 60,000 miles without replacement or adjustment of any kind.

Extensive national advertising is showing thousands of car owners how important it is to protect their cars from the damaging shocks caused by metal joints. More and more motorists are favoring the flexible fabric universal when they buy their new cars.

You should have this book—sent free to any dealer or engineer

We have prepared a book, "Universal Joints —Their Use and Misuse," that treats the whole subject from all its angles — the mechanical principles involved, construction, lubrication, processes of manufacture, tests for strength, and records of performance. It explains why so many leading engineers have adopted the Thermoid-Hardy Universal Joint. Send for a copy to-day.

THERMOID RUBBER COMPANY
Sole American Manufacturers
Factory and Main Offices: Trenton, New Jersey
New York, Chicago, San Francisco, Detroit, Cleveland, Atlanta, Philadelphia, Pittsburgh, Boston, London, Paris, Turin.

THERMOID-HARDY UNIVERSAL JOINT

Fanwise construction for strength

Makers of "Thermoid Hydraulic Compressed Brake Lining" and "Thermoid Crolide Compound Tires"

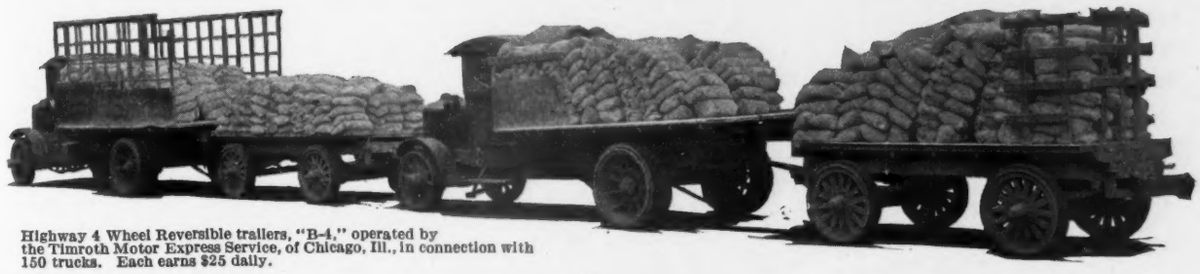
LIST OF USERS

American British Mfg. Co.
Allis Chalmers Mfg. Co.
Anderson Motor Co.
The Autocar Co.
Available Truck Co.
Barley Motor Car Co. (Roamer)
Crow-Elkhart Motor Corp.
Jas. Cunningham Son & Co
Dart Truck & Tractor Corp.
The Dauch Mfg. Co.
Diamond T Motor Car Co.
Doane Motor Truck Co.
Elgin Motor Car Corp.
Elgin Street Sweeper Co.
Fageol Motors Co.
Fifth Ave. Coach Co.
H. H. Franklin Mfg. Co.
Garford Motor Truck Co.
Gramm-Bernstein Motor Truck Co.
Handley Knight
Hawkeye Truck Co.
Hebb Motors Co.
Hendrickson Motor Truck Co.
Highway Motors Co.
Holt Mfg. Co.
Indiana Truck Co.
International Harvester Co. of A., Inc.
International Motor Co.
Jackson Motors Corp.
Kentucky Wagon Mfg. Co., Inc.
Kenworthy Motors Corp.
King Motor Car Co.
King Zeitler Co.
Lakewood Eng. Co.
Larrabee-Dayo Motor Truck Co.
Lexington Motor Co.
Locomobile Co.
Menominee Motor Truck Co.
Mercer Motors Co.
Moreland Motor Truck Co.
McFarlan Motor Co.
Nelson & LeMoon
E. A. Nelson Automobile Co.
Nelson Motor Truck Co.
D. A. Newcomer Co.
O'Connell Motor Truck Co.
Oliver Tractor Co.
Oneida Motor Truck Co.
Packard Motor Car Co.
Parker Motor Truck Co.
Reliance Motor Truck Co.
Reynolds Motor Truck Co.
Root & Van Dervoort Eng. Co.
Sanford Motor Truck Co.
Southwark Fdy. & Mach. Co.
Sprague Electric Co.
Stoughton Wagon Co.
Studebaker Corp.
Stutes Mar Tractor Co.
Templar Motors Co.
Tioga Steel & Iron Co.
Tow Motor Co.
Traffic Motor Truck Corp.
Transport Truck Co.
Twin City Four Wheel Drive Co., Inc.
United Motors Co.
Walter Motor Truck Co.
Ward La France Truck Corp., Inc
Watson Products Corp.
Geo. D. Whitcomb Co.
Wichita Motors Co.
H. E. Wilcox Motor Co.
J. C. Wilson Co.
Willys-Overland, Inc.
Zeitler & Lamson Truck & Tractor Co.

HIGHWAY TRAILER

EDGERTON WISCONSIN

The Largest Trailer Plant in the World



Highway 4 Wheel Reversible trailers, "B-4," operated by the Timroth Motor Express Service, of Chicago, Ill., in connection with 150 trucks. Each earns $25 daily.

Instead of More Trucks Add Highway Trailers

Save $1900 to $4000 in First Cost and $3000 to $7500 Yearly in Operation

Isn't this the business-like way to increase transportation?

Thousands of truck operators have found it so.

A Highway Trailer will add just as much haulage capacity as another truck.

And you save from $1900 to $4000 in first cost, according to size. Operating savings are even more important. Many firms save from $3000 to $7500 per year in every Highway Trailer they use.

(Names and operating costs furnished on request from firms whom we are premitted to quote.)

These are some plain advantages of a Highway Trailer over another truck to meet added hauling requirements:

You require no extra driver.

Save 90% in fuel costs.

Save 80% in oil, tires, repairs, etc.

Highway Trailers are earning net profits of $25 to $30 a day for many operators.

It is the only trailer accepted without design change, by the U. S. Army and Navy, which operate more than $1,000,000 worth.

We are confident that an investigation will show you the advantages and profits you can secure in the operation of Highway Trailers.

Write for literature or ask your dealer for a demonstration.

HIGHWAY TRAILER CO., EDGERTON, WIS.

Highway Trailer Branches at

Chicago	Philadelphia	Dallas, Texas	Toronto, Canada	Nashville, Tenn.	Boston
Detroit	Portsmouth, Va.	San Francisco	Kansas City	Shreveport, La.	Montgomery, Ala.
Milwaukee, Wis.	Sumter, S. C.	Spokane, Wash.	Minneapolis, Minn.	Atlanta, Ga.	Phoenix, Ariz.
Toledo, O.	Tampa Fla.	Winnipeg, Man.	Oklahoma City, Okla.	New York	

And Numerous Other Distributing Points

	1½ Ton	2½ Ton	4 Ton	6 Ton
Average Truck Costs	$2700	$3600	$4150	$5700
Highway Trailer Costs	$785	$995	$1325	$1695
Highway Trailer Saves	$1915	$2605	$2825	$4005

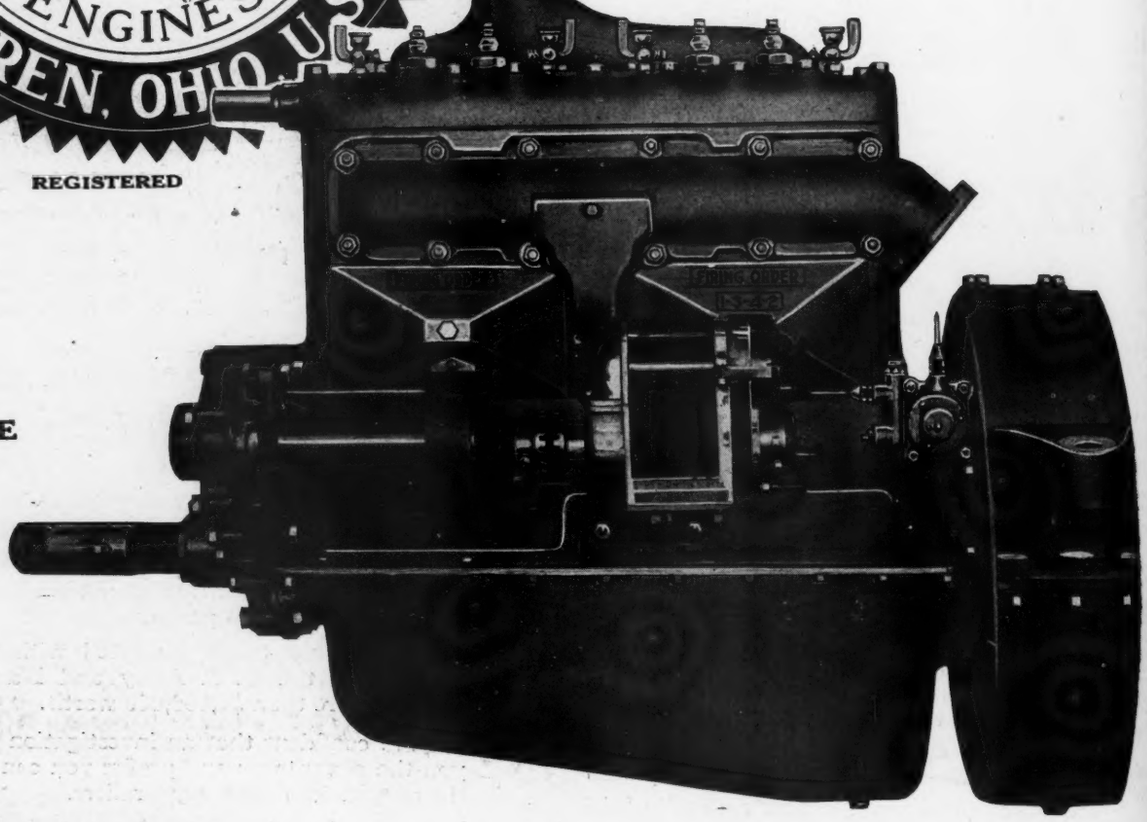
TRADE-MARK

SUPREME MOTORS CORPORATION
SUPREME
PEAK OF POWER
ENGINES
WARREN, OHIO, U.S.A.

REGISTERED

The Supreme *Eagle Seal* *Is Your Guarantee* of the Highest

quality of an Engine produced on a large scale production basis.



TYPE S4

The Ideal One-Ton Speed Truck Engine

Capacity: 40,000 Engines Per Annum

THE construction of SUPREME Engines is the development of many years of successful and specialized experience in gas-engine design and manufacturing technique. The S-4 WORK ENGINE is sturdily built to resist punishment and render long and satisfactory service, and represents the embodiment of the requirements of *continuous* duty for speed truck work.

Supreme Motors Corporation
Factory and General Offices
Warren, Ohio

Supreme Engines

"PEAK OF POWER"

DEALERS:

The firm with ambition, capital and energy will find vitally interesting information in the three pages which follow.

AKRON
Multi-Truck

THE THOMART MOTOR CO. AKRON, OHIO

The Thomart Idea

***One-Model*-Standardization**

***One-Year*-Guarantee**

Radically new service-basis

The Thomart Idea

***One-Model*-Standardization**

***One-Year*-Guarantee**

Radically new service-basis

The Thomart Idea

***One-Model*-Standardization**

***One-Year*-Guarantee**

Radically new service-basis

The Thomart Idea

***One-Model*-Standardization**

***One-Year*-Guarantee**

Radically new service-basis

AKRON
Multi-Truck

THE THOMART MOTOR CO. AKRON, OHIO

Specifications

MOTOR
Four cylinder, 4 x 5¼, a development of the Class "B" Liberty Truck Motor Cylinders. Cast en bloc; detachable heads. Three-point suspension.

CRANKSHAFT
Heat-treated special alloy steel. Balanced for all speeds and loads.

LUBRICATION
Direct force feed under controlled pressure to all moving parts. External-Alemite pressure system.

IGNITION
Westinghouse.

CARBURETOR
Stromberg; latest type for low-grade gasoline.

COOLING
Radiator of honeycomb type, mounted solely on front frame cross member, free from torsion. Forced circulation by centrifugal pump.

CLUTCH
Multiple disc, 15 plate, Raybestos faced.

TRANSMISSION
Selective type; three speeds forward one reverse.

PROPELLER SHAFT
Made up in two sections with three fabric universal joints, center joint supported by floating ball bearing—no whipping—no wear—no lubrication—no rattling.

REAR AXLE
Semi-floating spiral bevel gear. Hotchkiss drive. Final ratio 5⅛ to 1.

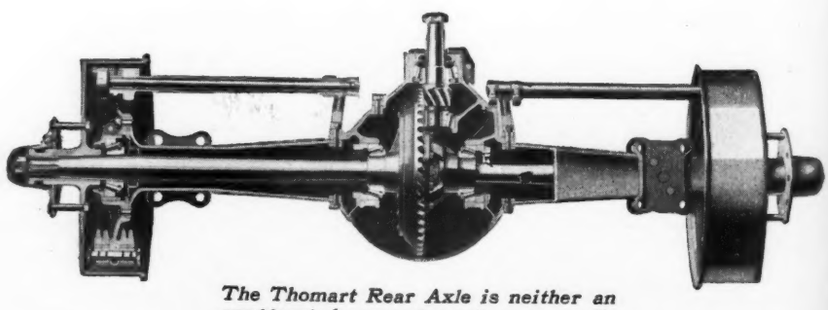
FRONT AXLE
Drop-forged I-beam section. Axle spindles inclined for caster action in steering.

BRAKES
Emergency and service, both internal expanding, on rear wheels. Drum 16 inches in diameter. Specially designed equalizing mechanism.

THOMART TEAM-WORK

SALES

In addition to giving the truck dealer the Thomart Five-Points which simplify his sales-work — I, *One model to demonstrate;* II, *One model to sell;* III, *One model to guarantee;* IV, *One analysis of territory;* and V, *No scattering of sales-energy*—the Thomart sales-organization directly applies its own experience and ability in person to the dealer's problem of territorial development, market-analysis, and methods and policies of management and selling.



The Thomart Rear Axle is neither an exaggerated passenger axle nor a modified heavy-duty truck axle. It is specially designed for speed-truck service.

ONE YEAR

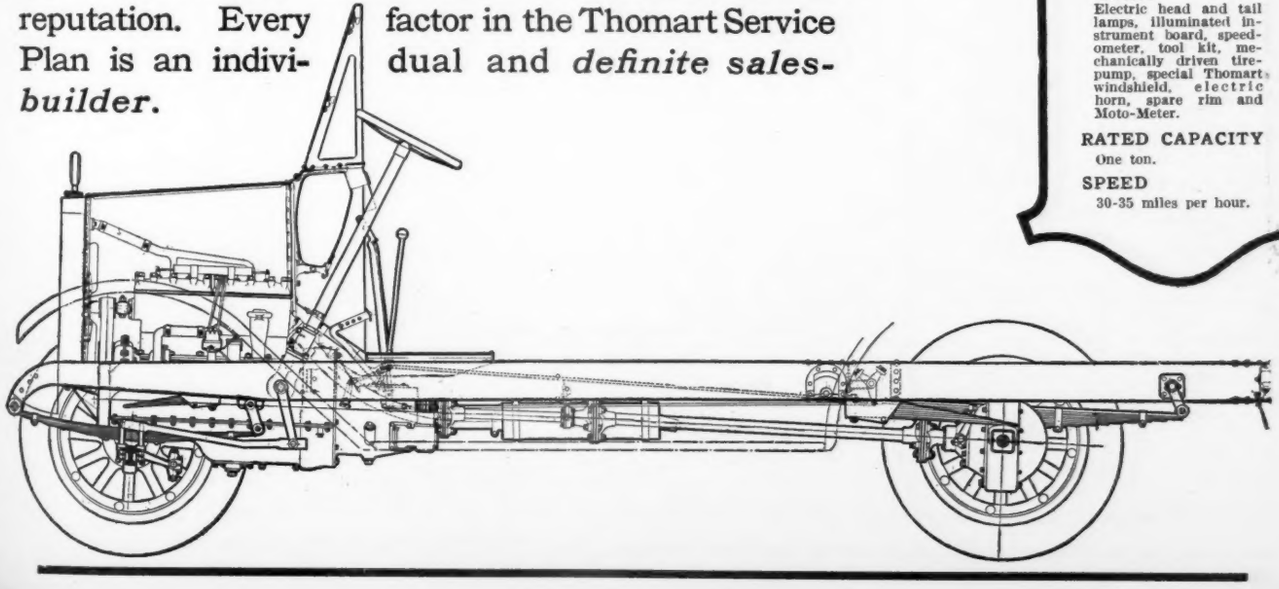
AKRON Multi-Truck

AKRON · OHIO
THE THOMART MOTOR CO.

THOMART TEAM-WORK

SERVICE

Teamed up with Thomart, the Akron Multi-Truck agency is strategically placed for rapid progress. With heavy inventories eliminated, its capital is free for business development. Unhampered by six or seven sets of replacement parts, the Service Department soon builds for the dealer an enviable service reputation. Every factor in the Thomart Service Plan is an individual and *definite sales-builder.*



Specifications

FRAME
Pressed steel, 5⅞ in. channel, four cross members. Length 16¼ feet; width 34 inches.

SPRINGS
Thomart Progressive type front and rear; Primary Set—semi-elliptical, long, flexible and resilient for light riding and high speeds. Auxiliary Set—quarter-elliptical, automatically brought into operation proportionately with load increase.

ELECTRIC EQUIPMENT
Westinghouse two-unit starting and lighting system, integral with engine assembly.

TIRES
Pneumatic cord, 34 x 5.

WHEELBASE
133½ inches (Tread, 56 inches).

CHASSIS EQUIPMENT
Electric head and tail lamps, illuminated instrument board, speedometer, tool kit, mechanically driven tire-pump, special Thomart windshield, electric horn, spare rim and Moto-Meter.

RATED CAPACITY
One ton.

SPEED
30-35 miles per hour.

GUARANTEE

THE NEED OF THE NATION

economical high-speed freight transportation

NO truck-dealer requires argument to convince him of that truth. How the Akron Multi-Truck and the Thomart Merchandising Plan meet that need is a matter of vital interest. Leadership is evident in every place.

In the first place, the Akron Multi-Truck is the first truck to be engineered throughout—in super-quality, in complete equipment, in speed, and in endurance—to meet the nation's need. It is the only all-round utility speed-truck, meeting *in a single model* 75% of all trucking requirements.

In the second place, The Thomart Motor Company is the first manufacturer to realize how vitally necessary specialization of production and standardization of merchandising is to both manufacturer and dealer and is the first to equip a wholly new plant specifically for that single purpose. The Thomart Motor Company is starting unhandicapped by out-of-date models and with no high-priced inventories to write off.

More than 75% of all trucks built in 1920 were of ¾ to 1½ ton capacity. That fact is worth re-reading and memorizing.

The Akron Multi-Truck is the direct answer to that sales opportunity—it means volume for The Thomart Motor Company and volume for every aggressive Thomart dealer.

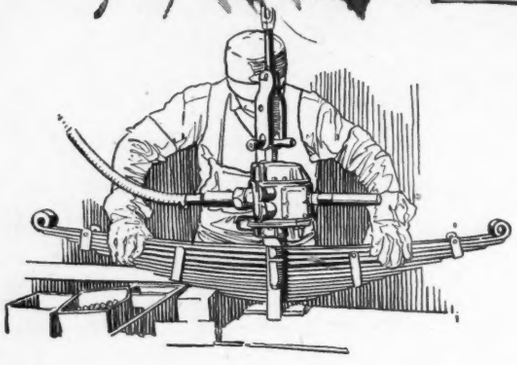
The Thomart Motor Company is now in production and making deliveries. Valuable territories are still open. Build lasting future prosperity on a sound foundation through volume. Get in touch with us without delay.

THE THOMART MOTOR CO.

Factory: KENT, OHIO **Offices: ARKON, OHIO**

Factors of Safety

In Spring Making — In Spring Buying



Down the Final Assembly Line

The individual spring leaves, correctly shaped and tempered, are carried down this conveyor to receive their finishing touches from the final assembly department.

Each man performs an operation—one rough polishes the leaves, another reams the eyes to a thousandth of an inch, still others insert the bushings, put on spring clips and insert grease between the leaves.

When the spring reaches the end of the assembly line, it is a complete, perfected and tested unit, ready for final inspection.

The care with which Detroit Springs are assembled gives them an added factor of safety.

We Offer These Factors of Safety

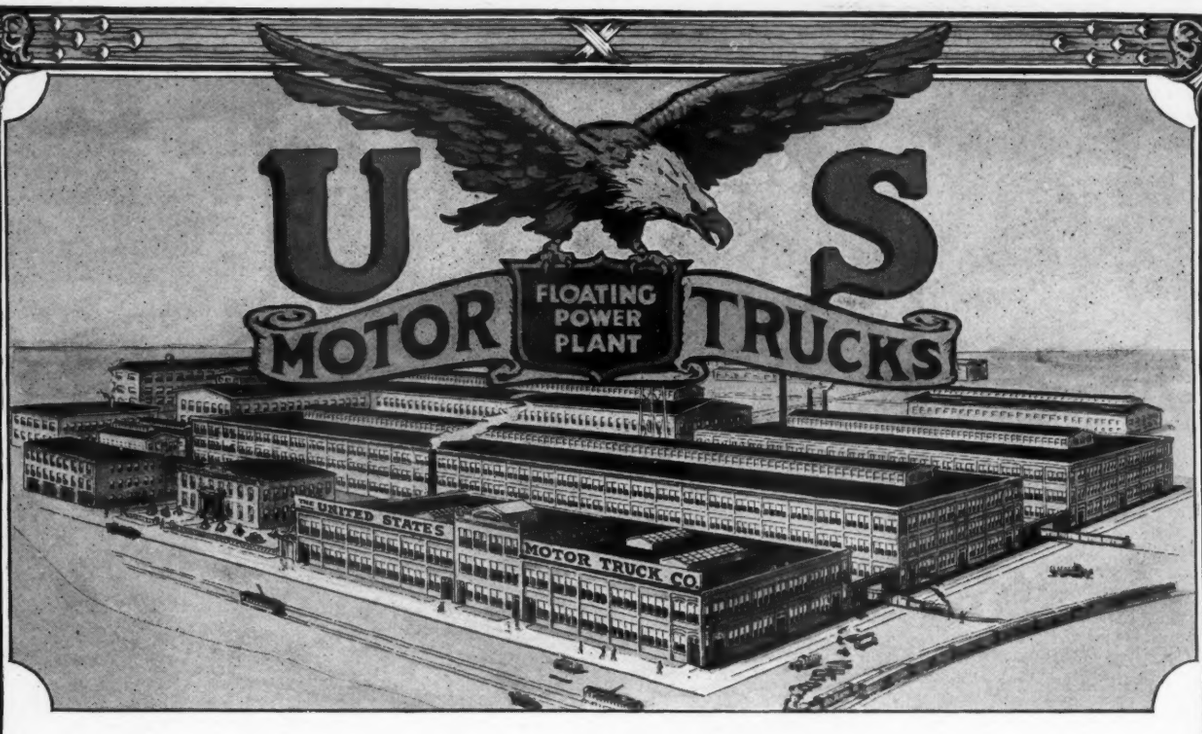
Consider Them As They Apply To Your Production

—16 years of experience.
—Abundant active and reserve capital.
—Unusual organization and mechanical equipment.
—Reserve machines, spacious storage and extensive reserves of steel.
—Broad and liberal sales policies.

These assure you a steady, unfailing supply of motor car springs.

Detroit Springs

Detroit Steel Products Company, 2250 East Grand Boulevard, Detroit, U. S. A.



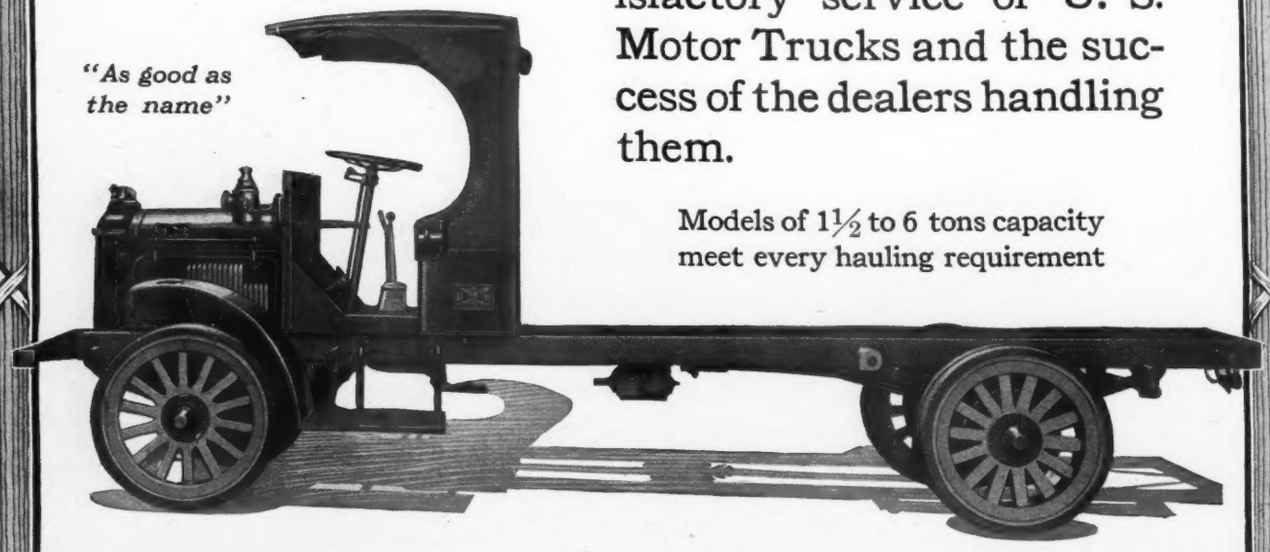
DEALERS

The United States Motor Truck proposition is an unusually good one. Write today for full details

The steady growth of the United States Motor Truck Company's factory for the past twelve years to its present magnitude is concrete evidence of the satisfactory service of U. S. Motor Trucks and the success of the dealers handling them.

"As good as the name"

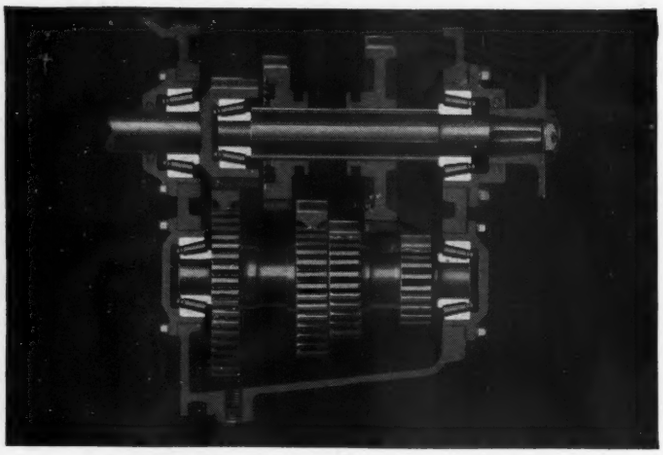
Models of 1½ to 6 tons capacity meet every hauling requirement



THE UNITED STATES MOTOR TRUCK CO.

Cincinnati, Ohio, U. S. A.

Constant High Speed



Transmission bearings are subjected to considerable thrust load. Because Timken Tapered Roller Bearings carry radial loads, thrust loads, and resultant loads at high speed they are ideal for keeping the gears in perfect mesh, the shafts in alignment, and assuring permanent quietness.

Actual motor speed is continuously present in the front main shaft transmission bearing. If the maximum motor speed is 3,000 r. p. m. then the main transmission shaft is revolving at that speed whenever the motor is wide open regardless of the speed at which the car is moving.

Obviously, a motor is not always wide open and the average motor speed is probably somewhere around 1,700 r. p. m.

Considering this speed factor, the performance of Timken Tapered Roller Bearings in the millions of transmission mountings in which they have been used during the past twenty years is conclusive evidence of their peculiar ability to handle high speeds together with both radial and thrust loads and the resultants of these loads in combination.

And think also how simple your service problem is when the inevitable wear that follows all motion does come—

just a turn of the adjusting nut and your Timken Tapered Roller Bearings function as well as when they were new.

THE TIMKEN ROLLER BEARING CO, CANTON, O

Timken Tapered Roller Bearings for Passenger Cars, Trucks, Tractors, Trailers, Farm Implements, Machinery, and Industrial Appliances

TIMKEN
Tapered
ROLLER BEARINGS

TWIN CITY

BRANCHES:

Lincoln, Neb.	Great Falls, Mont.
Des Moines, Iowa	Wichita, Kansas
Denver, Col.	Fargo, N. D.
Peoria, Ill.	Kansas City, Mo.
Indianapolis, Ind.	Spokane, Wash.
St. Louis, Mo.	Salt Lake City, Utah

Canada:

Minneapolis Steel & Machinery Co. of Canada, Ltd.—Winnipeg, Man.; Regina, Sask.; Calgary, Alta.

Export Office:

Minneapolis Steel & Machinery Co.—154 Nassau St., New York City

DISTRIBUTORS:

Frank O. Renstrom Co.—San Francisco and Los Angeles, Cal.

Baskerville & Dahl Co.—Watertown, South Dakota

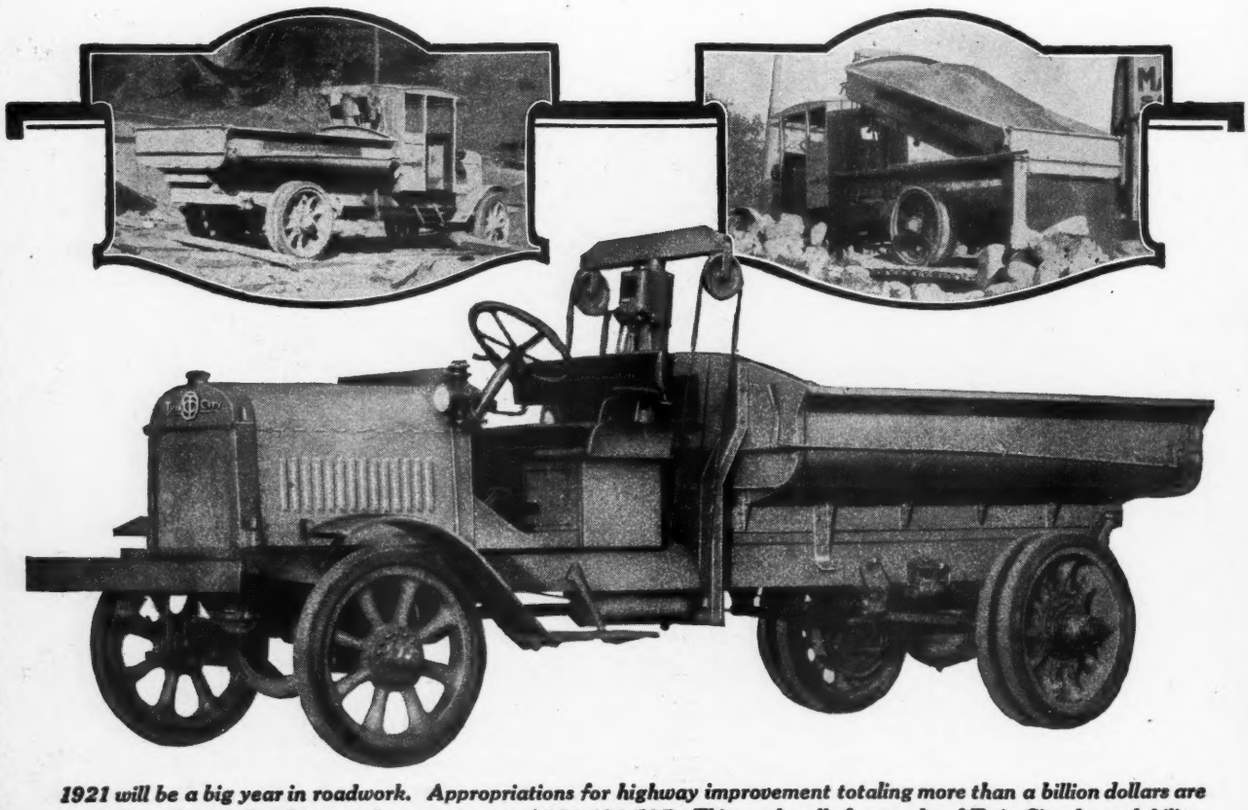
Southern Machinery Co.—Atlanta, Ga.

R. B. George Machinery Co.—Dallas, Houston, Amarillo, San Antonio, Texas and Crowley, La.

3½ and 2-Ton Motor Trucks

Service and Stability in Twin City Trucks mean all that is implied by a $7,000,000 institution, 37 acres of factory, many years of manufacturing leadership and warehouses always within phone call. Some attractive territory is available. Send for our proposition.

TWIN CITY COMPANY
Selling Products of
Minneapolis Steel & Machinery Company
Minneapolis, U. S. A.



1921 will be a big year in roadwork. Appropriations for highway improvement totaling more than a billion dollars are available. County bond issues alone amount to $361,431,537. This work calls for trucks of Twin City dependability.

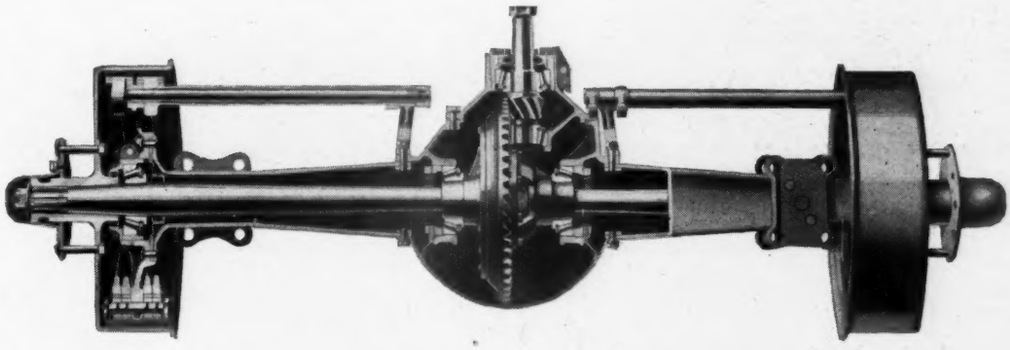
EATON

TO THOSE TRUCK BUILDERS who have sensed the demand of the times and have in production or contemplate a high-speed, one-ton model, the Eaton One-Ton Bevel Gear Axle is of vital import.

Purposely engineered to fulfill the exactions of fast, pneumatic-tired hauling, this Eaton Model 1000 stands out in the field alone, an axle dedicated to do one thing and to do it better than any other has done or can do it.

An amazingly rugged build, a perfected bevel gear drive that delivers utmost power to the rear wheels, the use of Bock Taper Roller Bearings throughout, and the double internal self-aligning brakes with 16-in.-diameter brake drums are among the items which pledge unequaled axle satisfaction to Eaton-equipped one-ton trucks.

We shall be pleased to forward blueprints and complete specifications of this Eaton One-Ton Axle and its companion Model 100 Front Axle to interested truck manufacturers or engineers.



THE EATON AXLE COMPANY, CLEVELAND, OHIO

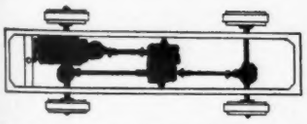
DIVISION OF THE STANDARD PARTS COMPANY

OTHER DIVISIONS ARE: THE PERFECTION SPRING COMPANY, THE BOCK BEARING COMPANY, THE STANDARD WELDING COMPANY

AXLES

DUPLEX TRUCKS

BUILT FOR BUSINESS



THE Duplex 4-Wheel Drive design is very much simpler than most people imagine—and the life of the truck for this reason alone is very materially lengthened.

The Duplex 4-Wheel Drive Truck is the Most Successful Heavy Duty Truck in America

ONE of the features of the Duplex 4-Wheel Drive that is of tremendous importance is the fact that the Duplex has 15 inches of road clearance as against 10 inches for the average truck.

This enables the Duplex to travel freely over roads that stop even the best rear wheel drive trucks.

It is a mathematical truth, too, that the 4-Wheel Drive principle delivers three times as much power to moving the load as is possible with any 2-Wheel Drive Truck of the same engine capacity. These features make the Duplex the all year truck—as sure and safe in Winter as in Summer.

That is why the Duplex can take the load over roads that are absolutely impossible for any 2-Wheel Drive.

The Duplex 4-Wheel Drive chassis is so clean and strong, its parts are so simple that it requires no close adjustments and by far less tinkering than is usual.

Get the facts before your customers—they will welcome them.

DUPLEX BUILT FOR BUSINESS

Duplex Truck Company

Lansing · Michigan

One of the Oldest and Most Successful Truck Companies in America

This not complete without pages 123–126.

Dixon's No. 677 Lubricant is the Record Holder

PRACTICALLY every record—speed, endurance, general service—has been made with the help of this superior gear and bearing lubricant.

Look for the Red Can

Conclusive evidence of true merit.

Dixon's No. 677 is a grease of medium density. It flows over gears in transmission and differential as smoothly as oil. But it will not squeeze out, no matter how heavy the load nor how swift the going.

Instead, Dixon's clings to the teeth whether pressure is extremely high or gears are idle. Neither hot nor cold weather affects it. At all times, gears shift quietly; car, truck or tractor is easily handled, and operating costs go 'way down.

For Worm Drives Use DIXON'S No. 675 Gear Oil

The smooth, lubricating film with which Dixon's No. 677 coats gears and bearings adds considerably to their life. Wear from friction is almost imperceptible. Even road dust and other foreign matter can do but little harm when Dixon's is present.

Dixon's No. 677 helps to make reputations for cars, trucks and tractors—and for dealers in high-grade supplies.

JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J.

D X N TRADE MARK *Makers of Quality Lubricants* *Established 1827* D X N TRADE MARK

balanced oversize

Makes Master Trucks Masters of Long-Distance Hauling

THE man with a Truck Line buys trucks as all truck owners are learning to buy them—not by price per truck, but by price per mile. This accounts for the large number of Masters in Truck Line service.

Here Master balanced oversize means dependability and low upkeep—high earning capacity and long years of service. Here the Master gets the real test a truck must pass before it can qualify as a good investment.

Long-distance hauling is a strenuous life for a truck. Master dealers and Master owners appreciate the balanced oversize that keeps the Master on the road—day after day under all conditions of service.

14 Master Models—1½ to 6 tons.

MASTER TRUCKS, Inc.
Chicago, Illinois

MASTER TRUCKS

MASTER OF THE LOAD ON ANY ROAD

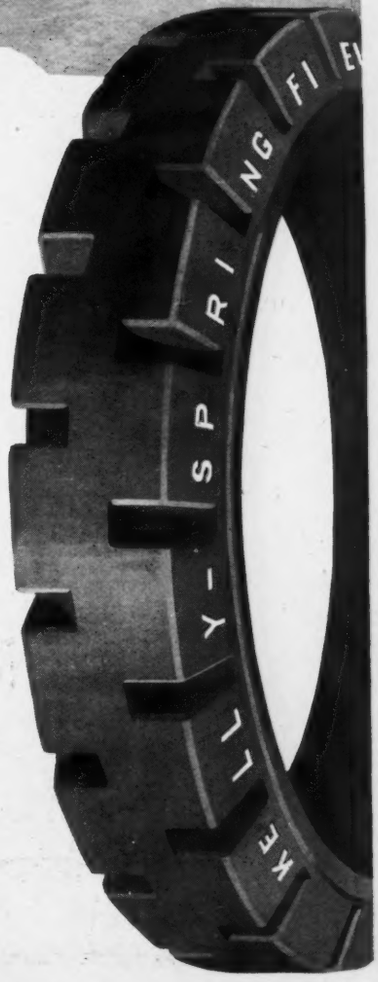
Caterpillar Tires will solve your traction problem

The popularity of Kelly Caterpillar Tires is partly due to their truck-saving resiliency and partly to the fact that they give double the mileage of ordinary tires.

But the feature of Caterpillars which has done more than any other to win the favor of truck owners is their ability to get traction on almost any kind of road.

Whether on slippery logging trails, in sand, in the mushy oil fields or on wet city streets, Caterpillars will carry the truck anywhere the engine can pull it.

They have solved the traction problem of hundreds of truck owners. They can solve yours.



Made in Sizes Suitable for Trucks of All Types and Weights

Kelly-Springfield Tire Company
GENERAL SALES DEPARTMENT
1710 Broadway **New York**

Trailmobile

Trade-Mark Reg. U. S. Patent Office

Persuade Truck Owners To Economize!

The Motorless Motor Truck

Thousands in Use

DIVISION 1—Light, one-way four-wheeled Trailmobiles for use with passenger cars or light trucks: 1,250 lbs., ¾ ton and 1 ton.

DIVISION 2—Heavy-duty four-wheeled Trailmobiles for use with trucks: 1½ tons, one-way; 2 tons; 3½ tons, and 5 tons reversible and one-way.

DIVISION 3—Semi-Trailmobiles: 2½ tons; 4 tons; 6 tons; and 10 tons.

DIVISION 4—Pole Trailmobiles: 1½ ton and 3 ton.

THAT'S what everybody wants to do now! When you sell a man a Trailmobile you persuade him to economize and cut his costs.

Prevailing business conditions help the dealer sell Trailmobiles. For economies made possible by the Trailmobile often amount to half the previous hauling costs. The Trailmobiles pay for themselves in a very few months. There is always a market for such equipment.

The profit margin is as large as that on the most desirable trucks. Investment is moderate and service expense after the sale small. Trailmobiles create volume when the dealer needs it.

Write for the facts about the Trailmobile dealer proposition.

THE TRAILMOBILE COMPANY

2901 Robertson Avenue, Oakley **Cincinnati, Ohio**

Good roads are preserved by reducing the load carried on each wheel

WHY THE FURNACE TENDER SMILES

He smiles because science has lifted a burden of responsibility from his shoulders.

Under the old rule of thumb methods (which still obtained in a few old fashioned foundries) annealing was largely a matter of guesswork. Of course the furnace man's experience helped him, but it was not sufficient to produce castings that were uniformly and properly annealed. There was no assurance about it. Today, in the foundries making CERTIFIED malleable, annealing, like every preceding step in the process, is controlled in accordance with known laws of heat treatment and by means of pyrometers in scientifically constructed furnaces.

The furnace tender knows when his castings are properly annealed, and he knows that all are of the same high quality.

Members Receiving Certificates for Quarter Ending Dec. 31, 1920.

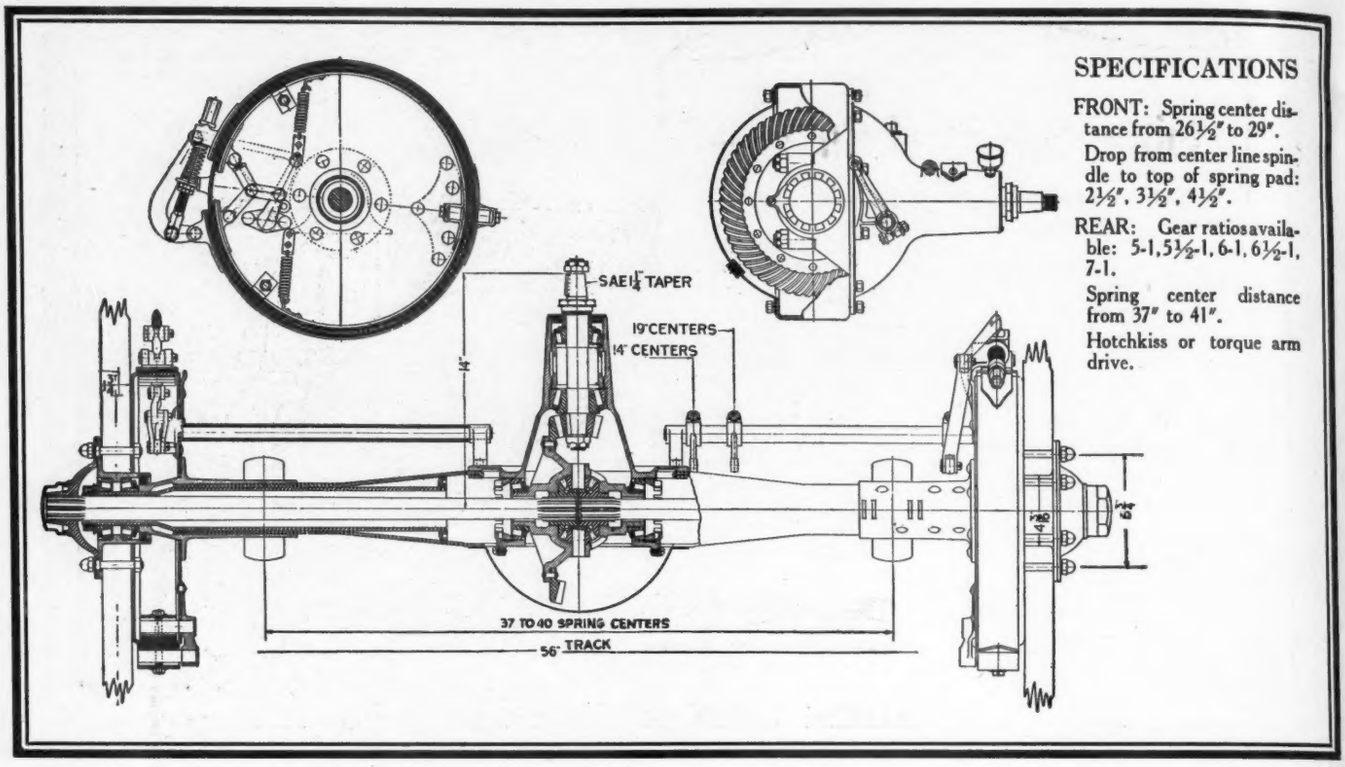
American Malleable Castings Co.	Marion, Ohio
American Malleables Co.	Lancaster, N. Y.
Belle City Malleable Iron Co.	Racine, Wis.
Chain-Belt Co.	Milwaukee, Wis.
Chicago Malleable Castings Co.	West Pullman, Chicago, Ill.
Columbus Malleable Iron Co.	Columbus, Ohio
Dayton Malleable Iron Co.	Dayton, Ohio and Ironton, Ohio
Devlin Mfg. Co., Thomas	Philadelphia, Pa.
Eastern Malleable Iron Co., Naugatuck Malleable Iron Works, Bridgeport Malleable Iron Works, Troy Malleable Iron Works, Wilmington Malleable Iron Works, Vulcan Iron Works.	Naugatuck, Conn. Bridgeport, Conn. Troy, N. Y. Wilmington, Del. New Britain, Conn.
Erie Malleable Iron Co.	Erie, Pa.
Federal Malleable Co.	West Allis, Wis.
Fort Pitt Malleable Iron Co.	Pittsburgh, Pa.
Fraser & Jones Co.	Syracuse, N. Y.
Globe Malleable Iron & Steel Co.	Syracuse, N. Y.
Haskell & Barker Car Co.	Michigan City, Ind.
Illinois Malleable Iron Co.	Chicago, Ill.
Iowa Malleable Iron Co.	Fairfield, Ia.
Kalamazoo Malleable Iron Co.	Kalamazoo, Mich.
Laconia Car Co.	Laconia, N. H.
Link-Belt Co.	Indianapolis, Ind.
Marion Malleable Iron Works,	Marion, Ind.
Moline Malleable Iron Co.	St. Charles, Ill.
National Malleable Castings Co., Cleveland, Ohio, Chicago, Ill., Indianapolis, Ind., Toledo, Ohio, E. St. Louis, Ill.	
Northern Malleable Iron Co.	St. Paul, Minn.
Northwestern Malleable Iron Co.	Milwaukee, Wis.
Pittsburgh Malleable Iron Co.	Pittsburgh, Pa.
Pressed Steel Car Co.,	McKees Rocks, Pa.
Rhode Island Malleable Iron Works	Hillsgrove, R. I.
Rockford Malleable Iron Works,	Rockford, Ill.
Ross-Meehan Foundries,	Chattanooga, Tenn.
Standard Malleable Castings Co.,	Terre Haute, Ind.
Stowell Co.,	South Milwaukee, Wis.
T. H. Symington Co.,	Rochester, N. Y.
Terre Haute Malleable & Mfg. Co.,	Terre Haute, Ind.
Timken-Detroit Axle Co.,	Canton, Ohio
Trenton Malleable Iron Co.,	Trenton, N. J.
Union Malleable Iron Co	E. Moline, Ill.
Vermilion Malleable Iron Co.,	Hooperston, Ill.
Wanner Malleable Iron Co.,	Hammond, Ind.
Wisconsin Malleable Iron Co.,	Milwaukee, Wis.
York Manufacturing Co.,	York, Pa.
Zanesville Malleable Co.,	Zanesville, Ohio

Any serious complaint as to the quality of Malleable Iron furnished by any of the firms listed will be rigidly investigated if brought to the attention of the Association.

CERTIFIED MALLEABLE-CASTINGS

THE AMERICAN MALLEABLE CASTINGS ASSOCIATION

1900 Euclid Bldg. Cleveland, Ohio U. S. A.



SPECIFICATIONS

FRONT: Spring center distance from 26½" to 29".

Drop from center line spindle to top of spring pad: 2½", 3½", 4½".

REAR: Gear ratios available: 5-1, 5½-1, 6-1, 6½-1, 7-1.

Spring center distance from 37" to 41".

Hotchkiss or torque arm drive.

Columbia Light Truck Axles Are the Result of Long Experience

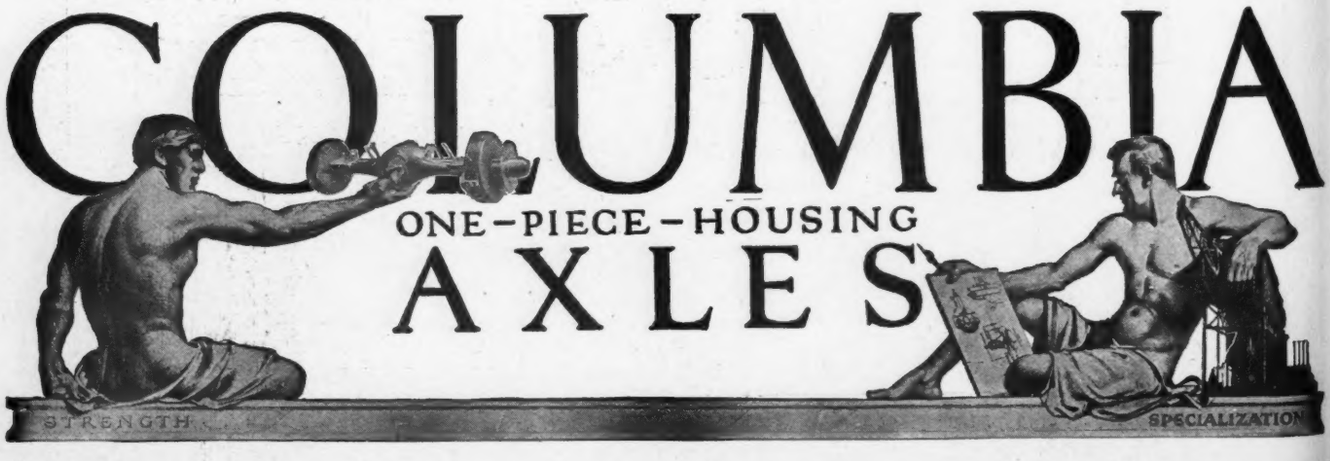
OUR FIRST AXLES were built for passenger cars and heavy-duty trucks. For these types of vehicles, Columbia One-piece-housing Rear Axles have proved their reliability and strength in every sort of crisis and over long periods of time.

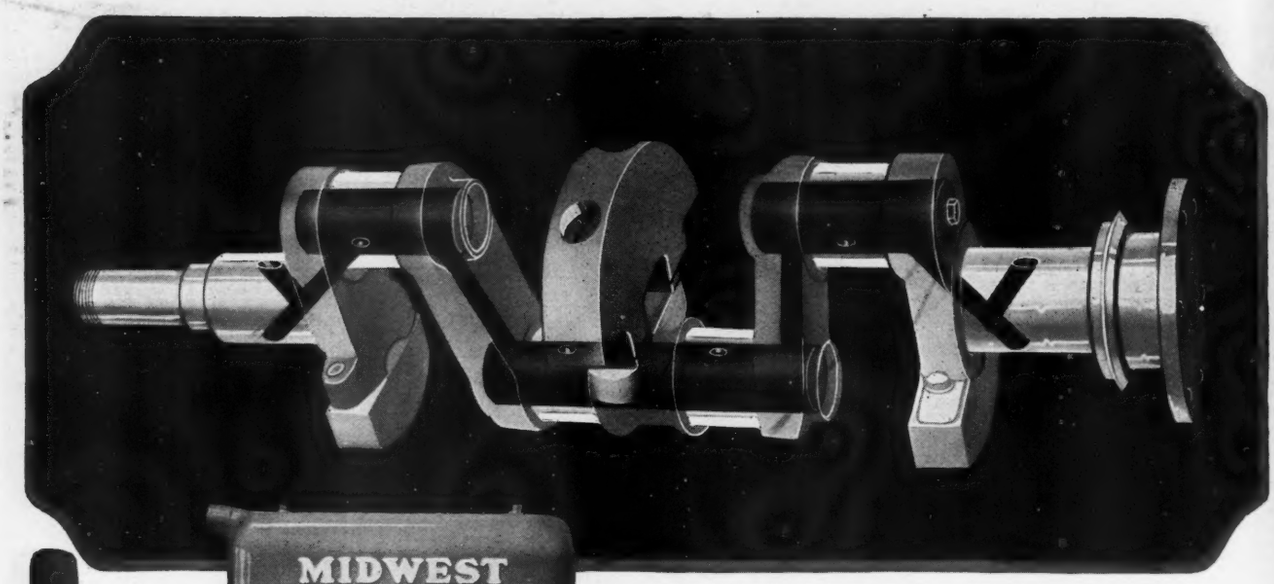
All this experience, specialized knowledge and skill is now available in Columbia Special Light Axles for high-speed delivery trucks.

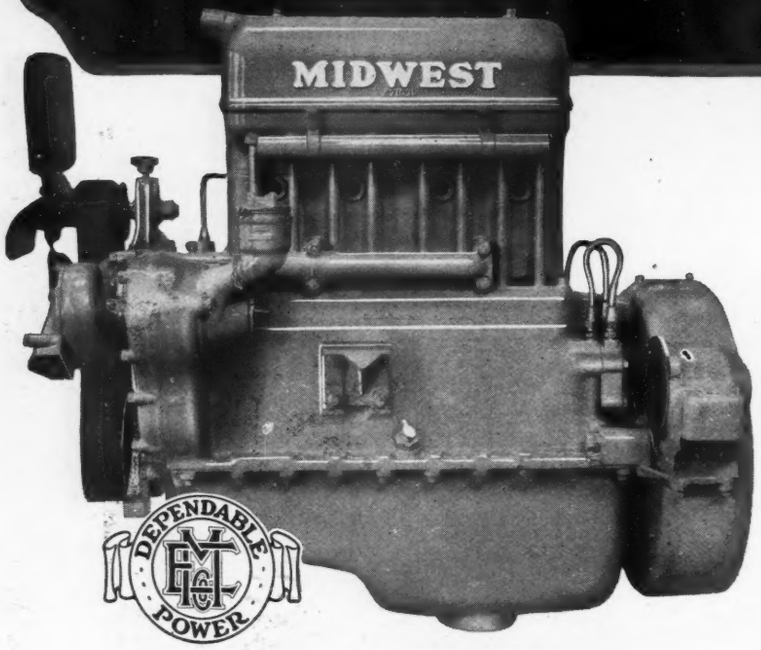
These light axles are counterparts, in every detail except size, of our heavier axles. The rear axle housing is *pressed*—not cast—from a single piece of steel with one weld.

Our laboratory tests show that this provides 50 per cent greater torsional strength. This is supplemented by extra heavy driving shafts, ring-gears and brake drums.

The Columbia Axle Company, Cleveland, Ohio







Model 408
3⅝ x 5
206.4 Cu. In. Displacement

R. P. M.	H. P.	Torque
500	11	116 lbs. ft.
600	13.5	118 lbs. ft.
800	19	125 lbs. ft.
1000	25	131 lbs. ft.
1200	29	127.5 lbs. ft.
1400	33	124 lbs. ft.
1600	36	118 lbs. ft.
1800	39	114 lbs. ft.

The "Miracle" Engine for Speed Trucks

Forget Bore and Stroke—
Count Only Performance

Based on actual tests—there never has been an engine built that delivers the *High Speed* performance of this Midwest Truck Engine.

It has been called the "Miracle" engine by engineers who have seen it perform. This engine is absolutely the master of those *High, Exacting Speeds* that are today demanded of the Speed Truck.

The reasons for this superb performance are typically Midwest. The same principles of design and construction that have given the Midwest Engine its high place in the tractor field are inherent in this engine.

High speed demands a big crankshaft and a lubricating system that delivers a *volume* of oil great enough at all times to match the load on the engine.

But we have done more than this in this engine. We have given fuel economy by cutting friction to the minimum. The oiling system and a properly balanced crankshaft insures this.

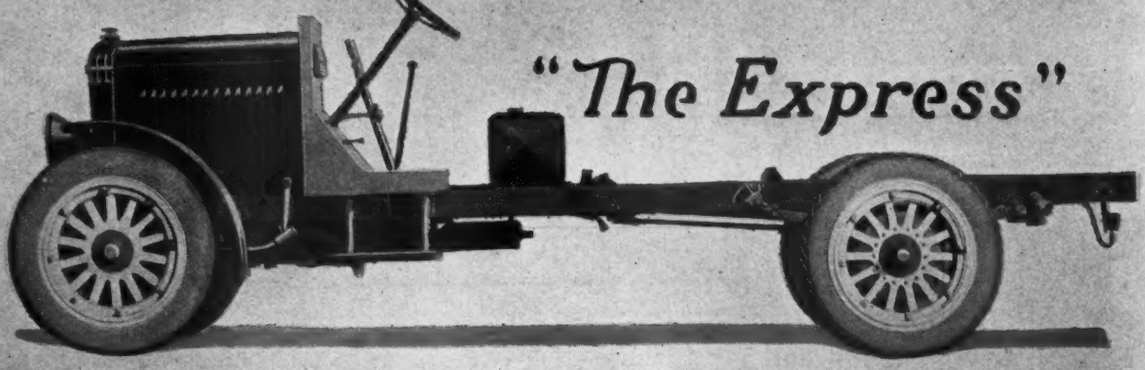
The weight and dimensions of this engine make it comparatively easy to install in your speed truck without radical changes in design.

We will be very glad to send you performance records on this engine. We suggest that you confer with us immediately before our open capacity is entirely absorbed.

MIDWEST ENGINE COMPANY
INDIANAPOLIS, U. S. A.

MIDWEST
TRUCK *and* TRACTOR ENGINE

KISSEL



New One-Ton Speed Truck

DESIGNED by Kissel and built with the same care and of the same quality materials that made Kissel Trucks the By-word for Reliability, Dependability and Economical Transportation.

It is a regular one-ton Kissel Truck, with a large, powerful Kissel-built truck motor, capable of attaining 35 miles per hour—frame and springs of greater strength—a worm drive rear axle of latest type.

Completely equipped with electric lighting and starter, express type body and top, cord tires, painted complete $1985 F.O.B. factory.

For the retailer, merchant, wholesaler, farmer—every business that needs a dependable, speedy truck of one-ton capacity.

$1585

F. O. B. Factory

For chassis standard equipment

$1985

F. O. B. Factory

For chassis and body completely equipped with electric lighting and starter, express type body and top, cord tires and painted complete.

DEALERS

The complete line of Kissel Trucks—General Utility, Freighter, Heavy Duty and Goliath, headlined with this new one-ton Express Speed Truck at a popular price, creates a sales opportunity for 1921 that makes the Kissel franchise in your territory of double value.

Write or wire us for the name of your nearest distributor for Kissel franchise details.

THE KISSEL MOTOR CAR CO.

HARTFORD, WIS., U. S. A.

Originators of the ALL-YEAR Cab for Trucks

Kissel General Utility Model, chassis capacity including body 4100 lbs.

Kissel Freighter Model, chassis capacity including body 6350 lbs.

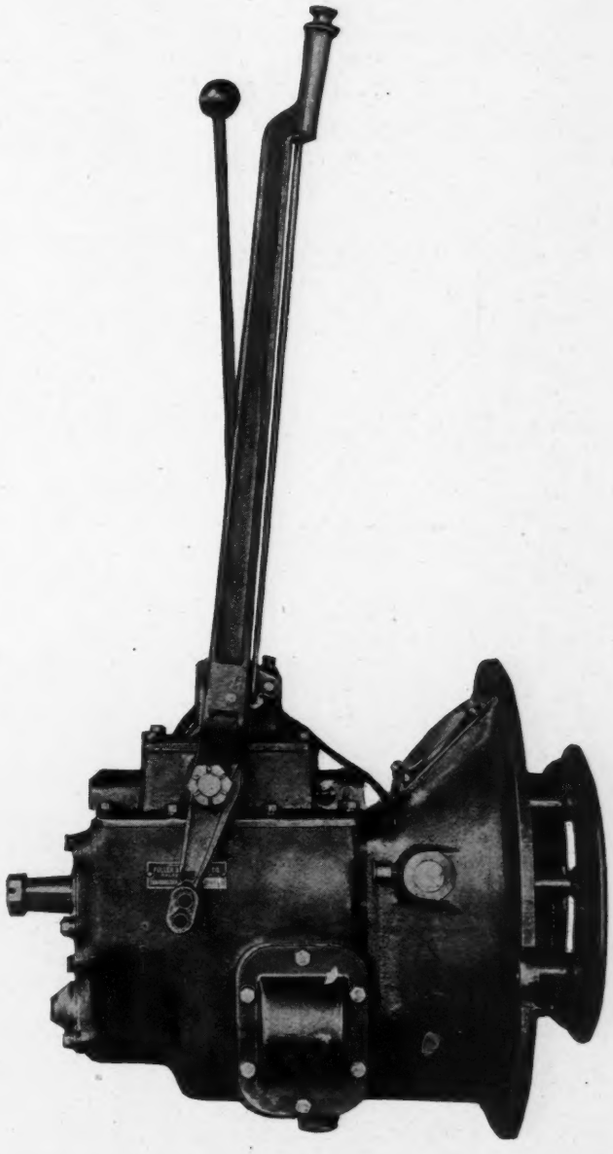
Kissel Heavy Duty Model, chassis capacity including body 9600 lbs.

FULLER

TRANSMISSIONS

Fuller Transmissions are sturdy. They perform their duties of every-day hard work with but little trouble. They are designed and built for hard work in motor trucks.

Trucks will probably always be overloaded, and Fuller Transmissions will stand their part of the overload in a very satisfactory manner.



FULLER & SONS MFG. CO.

KALAMAZOO MICHIGAN

Now

T[illegible]e for tremendous [illegible] motor trucks is [illegible]—the buying season [illegible]ed off big.

D[illegible] who realize the neces[illegible] of securing a fi[illegible] foothold for the futu[illegible] the automo[illegible] business are getting [illegible] with trucks no[illegible]

Ev[illegible] indication points to a shortage of trucks to [illegible] the coming demand in the next 90 days. Th[illegible]e last year less than one-half of the de[illegible] for Traffic Trucks was supplied.

For [illegible] years in the hand[illegible] thousands of ow[illegible] the world over, the [illegible] has proved to [illegible] the most economical motor-driven hauling [illegible] in existence.

De[illegible] who are in touch with the trend of tru[illegible] are losing no time in taking advantage of [illegible] opportunity Traffic Trucks offer. The Tr[illegible] presents proved quality, [illegible] capacity, and a price that knows no competition.

No[illegible] the time to get in touch [illegible] Traffics. Wi[illegible], but you'll save time if you will get on a t[illegible] and come to the factory [illegible]r expense rea[illegible] do business—*and th[illegible] is Now!*

—over

Traffic Truck

4000 LBS. CAPACITY

$1595

The Most Remarkable Truck Value in Existence

Every link in the Traffic chain is a unit of established quality, combined by experts in a truck designed by skilled and experienced engineers. The finished job is a truck that is sound all over—without a weak link anywhere. It invites comparison with any other truck of similar capacity, regardless of price.

Building Traffic Trucks of only one model and capacity in great quantities has made it possible to deliver the *lowest priced* [illegible] *truck in the world.* Anyone concerned with hauling problems should write for catalog and complete facts.

Notice to Dealers—Some valuable territory still open. Write today.

Traffic Motor Truck Corporation, St. Louis, U. S. A.

Largest exclusive builders of [illegible] trucks in the world

Prevent This

by Installing Gill One-Piece Piston Rings

TIME GOES ON—*But The Truck Stands Still*

There isn't a truck built that will not take a hill under full load if the engine is delivering full power.

But let that engine falter even to a slight degree and the truck will tucker out before it's part way up the grade.

That's when the truck owner's pocketbook begins to suffer. That's when the air around the driver takes on a hue of deep indigo. That's when a disappointed customer at the other end of the line begins to tear his hair and consider the advisability of placing his business elsewhere.

But all of that can be avoided if the engine is given the attention it should and must have.

The very minute a truck engine begins to show signs of loss of vitality, loss of power, ***investigate!*** First of all look to the piston rings. If they aren't holding ***all*** of the fuel in the combustion chamber where it can be compressed into power, and if they aren't keeping oil out, loss of power is bound to result. And with loss of power comes loss of money and business.

Thirty-four Branch Offices prepared to give practically 24 hour service on Gill One-Piece Piston Rings to *every* jobber, supply store, dealer, garage and repair shop in the country.

The **Gill Manu· Chicago.**

Sole Export Agent:
AUTOMOTIVE PRODUCTS CORPORATION
Woolworth Building, New York, N. Y.

Gill

One-Piece Piston Rings

Assure this

THE TRUCK GOES UP—*And Delivery's Made on Schedule*

A satisfied customer is one that gets ***what*** he wants ***when*** he wants it. It's up to the manufacturer or merchant to see that he gets ***what*** he wants. But it's up to the truck to get it to him ***when*** he wants it.

The one certain way to instill confidence in a truck is to put Gill One-Piece Piston Rings in its engine. Then that old truck will laugh at hills; will plough its way through mud and sand and snow; and will deliver its load on schedule.

For Gill Piston Rings keep the power of youth in an engine. They won't let it experience the weakness that usually accompanies old age or rigorous service.

Gill Piston Rings, because they are ***individually*** cast from a special gray iron, retain their elasticity under the stress and strain of the hardest usage. They press so snugly against the cylinder walls that gasoline cannot waste past them. Every drop is compressed into power. And they keep sparkplugs clean by keeping oil out of the firing chamber. They are proof positive against loss of power.

Identify the Gill One-Piece Piston Ring by the joint, but do not measure its merit by the joint ***alone.***

-facturing Company
Illinois

Canadian Manufacturer:
BROWN ENGINEERING CORPORATION, Limited
Toronto, Ontario

Prevent This

by Installing Gill One-Piece Piston Rings

TIME GOES ON—*But The Truck Stands Still*

There isn't a truck built that will not take a hill under full load if the engine is delivering full power.

But let that engine falter even to a slight degree and the truck will tucker out before it's part way up the grade.

That's when the truck owner's pocketbook begins to suffer. That's when the air around the driver takes on a hue of deep indigo. That's when a disappointed customer at the other end of the line begins to tear his hair and consider the advisability of placing his business elsewhere.

But all of that can be avoided if the engine is given the attention it should and must have.

The very minute a truck engine begins to show signs of loss of vitality, loss of power, ***investigate!*** First of all look to the piston rings. If they aren't holding ***all*** of the fuel in the combustion chamber where it can be compressed into power, and if they aren't keeping oil out, loss of power is bound to result. And with loss of power comes loss of money and business.

Thirty-four Branch Offices prepared to give practically 24 hour service on Gill One-Piece Piston Rings to *every* jobber, supply store, dealer, garage and repair shop in the country.

The **Gill Manu**
Chicago.

Sole Export Agent:
AUTOMOTIVE PRODUCTS CORPORATION
Woolworth Building, New York, N. Y.

Gill

One-Piece Piston Rings

Assure this

THE TRUCK GOES UP—*And Delivery's Made on Schedule*

A satisfied customer is one that gets ***what*** he wants ***when*** he wants it. It's up to the manufacturer or merchant to see that he gets ***what*** he wants. But it's up to the truck to get it to him ***when*** he wants it.

The one certain way to instill confidence in a truck is to put Gill One-Piece Piston Rings in its engine. Then that old truck will laugh at hills; will plough its way through mud and sand and snow; and will deliver its load on schedule.

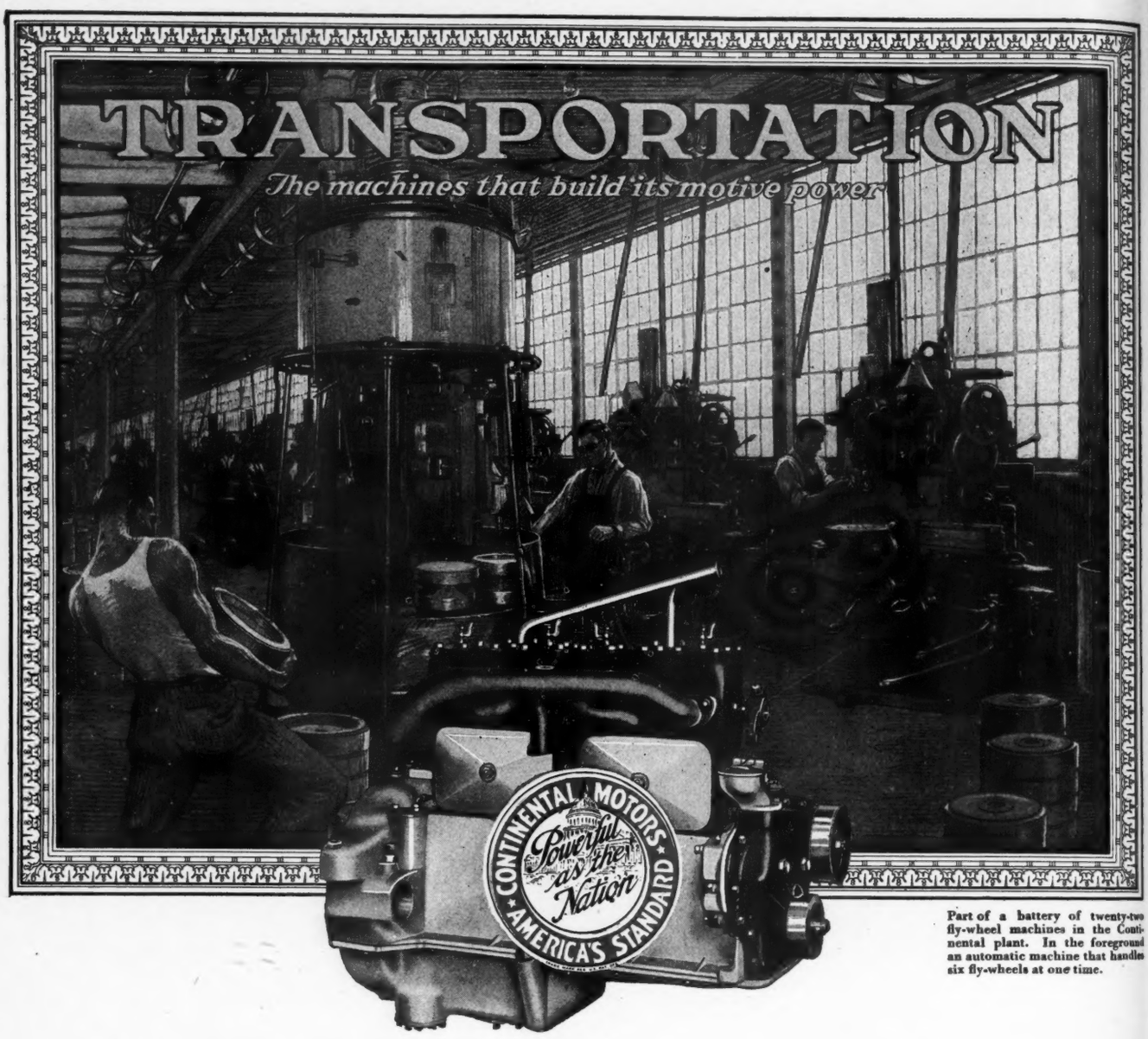
For Gill Piston Rings keep the power of youth in an engine. They won't let it experience the weakness that usually accompanies old age or rigorous service.

Gill Piston Rings, because they are ***individually*** cast from a special gray iron, retain their elasticity under the stress and strain of the hardest usage. They press so snugly against the cylinder walls that gasoline cannot waste past them. Every drop is compressed into power. And they keep sparkplugs clean by keeping oil out of the firing chamber. They are proof positive against loss of power.

-facturing Company
Illinois

Canadian Manufacturer:
BROWN ENGINEERING CORPORATION, Limited
Toronto, Ontario

Identify the Gill One-Piece Piston Ring by the joint, but do not measure its merit by the joint ***alone.***



Part of a battery of twenty-two fly-wheel machines in the Continental plant. In the foreground an automatic machine that handles six fly-wheels at one time.

The influence of Continental equipment on manufacturers' sales is no longer a mere well founded theory. It is a firmly established fact. ¶ There is a DEMAND for the Continental-equipped product that has been reared by the structure of public confidence that Continental quality has built for itself. ¶ The Continental organization has not only concentrated its energies on the task of building quality into the Red Seal Motor. It has concentrated on the problem of building APPRECIATION into the minds of the public. ¶ Today the Continental reputation for power-dependability is unquestionably a tangible selling factor that is passed on to every manufacturer whose power unit is represented by — the Continental Red Seal.

CONTINENTAL MOTORS CORPORATION

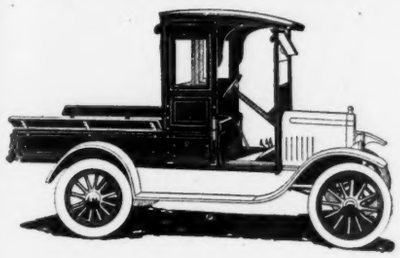
Offices: Detroit, U. S. A. Factories: Detroit and Muskegon

Largest Exclusive Motor Manufacturers in the World

Continental Motors

STANDARD POWER FOR TRUCKS, AUTOMOBILES AND TRACTORS

Martin-Parry
Commercial Bodies



The body above is No. 166A--a light express body with open cab front--for Ford Model "T" Chassis, also built with vestibule front for winter service.

Martin-Parry Distributing Points

Atlanta	Martin-Parry Corp.
Boston	Martin-Parry Corp.
Buffalo	Martin-Parry Corp.
Chicago	Martin-Parry Corp.
Dallas	Martin-Parry Corp.
Denver	Auto Equipment Co.
Detroit	Schoof-Gracey Body Co.
Duluth	Foster Motor Co.
El Paso	Tri-State Access. Corp.
Kansas City	Henry Seested.
Memphis	Universal Motor Car Co.
Milwaukee	Wis. Body & Sales Co.
Minneapolis	Northwest Body Co.
New York	Martin-Parry Corp.
Oklahoma City	H. N. Knight Sup. Co.
Pittsburgh	Pittsburgh Com. Body Co.
Portland	Francis Motor Car Co.
Richmond, Va.	Benj. T. Crump Co.
St. Louis	Bailey Auto Body Sales Co.
San Francisco	Flynn & Collins.
Seattle	Commercial Body Co.
Spokane	Universal Auto Co.
Wichita	Price Auto Service Co.

The body below is No. 263--a popular eight post express model for use on Ford Ton Truck Chassis. See our new catalog for other express bodies.

Two Good Bodies for Spring Selling

THE new Martin-Parry Line offers dealers a wide range of express bodies especially good for spring selling. Here are two leaders.

Model No. 263—an eight post express body for the Ford Truck—is in big demand by merchants, transfer-men, farmers and many others who handle bulky goods or produce.

It has 14 inch side panels with flare boards, extra high end-gate, new style running-board-fender, and wide top supported by posts rigidly braced on outer edges of flare boards.

Model No. 166A—an open style express body for the Ford Model "T" Chassis—is ideal for any light hauling requiring no protection for the load. A very popular model for spring and summer use.

Our 1921 line includes styles and sizes to suit all the body requirements of your customers. Each model has every feature essential to long service and full satisfaction—practical design, quality materials, strong construction and durable finish.

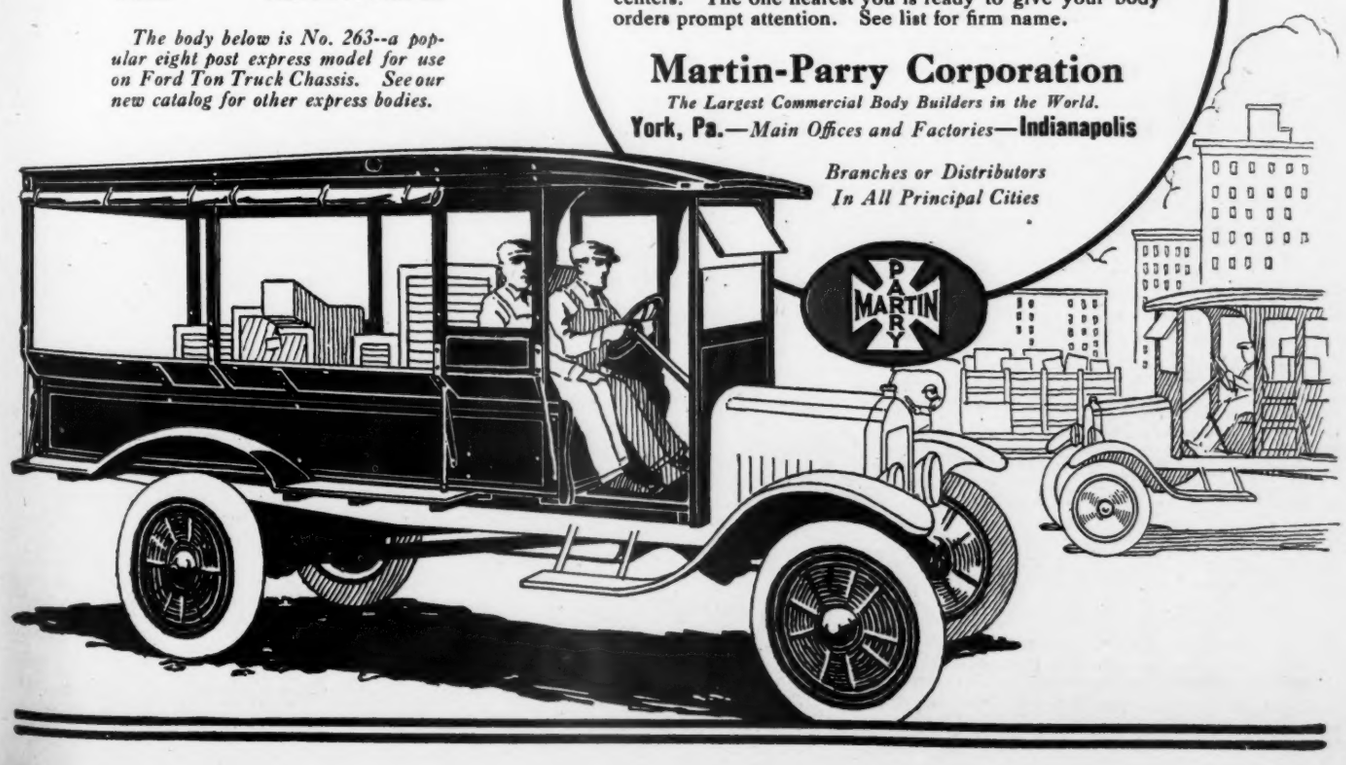
Martin-Parry distribution is nation-wide. Complete stocks are carried by branches and distributors in all large centers. The one nearest you is ready to give your body orders prompt attention. See list for firm name.

Martin-Parry Corporation

The Largest Commercial Body Builders in the World.

York, Pa.—*Main Offices and Factories*—**Indianapolis**

Branches or Distributors In All Principal Cities



Transport, Built for the User

Intimate contact with the needs of truck users in all industries —knowledge furnished by men whose service requirements are greatest—have enabled us to build into the Transport that high quality which assures superior performance under all conditions.

Transports are built from the user's angle. We designed and perfected an Automatic Lubricating System to save needless work and worry. We added strength through the free use of Nickel Steel. We reduced friction to the near-vanishing point. We incorporated such conveniences as Hot Spot Manifold, Impulse Starter, Motometer, Odometer and Alemite System of Lubrication. Transport has more than fulfilled its promise.

The dealer who offers this truck of super value to his trade is assured big returns. Write for details of our proposition.

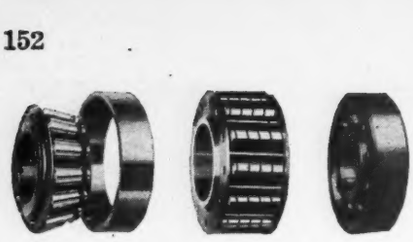
TRANSPORT TRUCK COMPANY, Mount Pleasant, Michigan

Builders of "The Frictionless Truck"

Four models for 2000, 3000, 5000 and 7000 lb. service
Pneumatic tires optional at extra cost on all models.

TRANSPORT

INTERNAL GEAR DRIVE TRUCKS

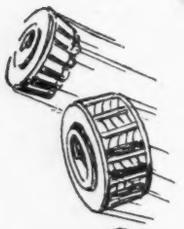


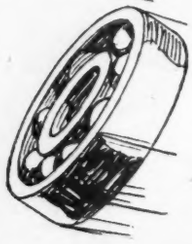
BEARINGS

TO THE TRADE AND TO FLEET OWNERS—

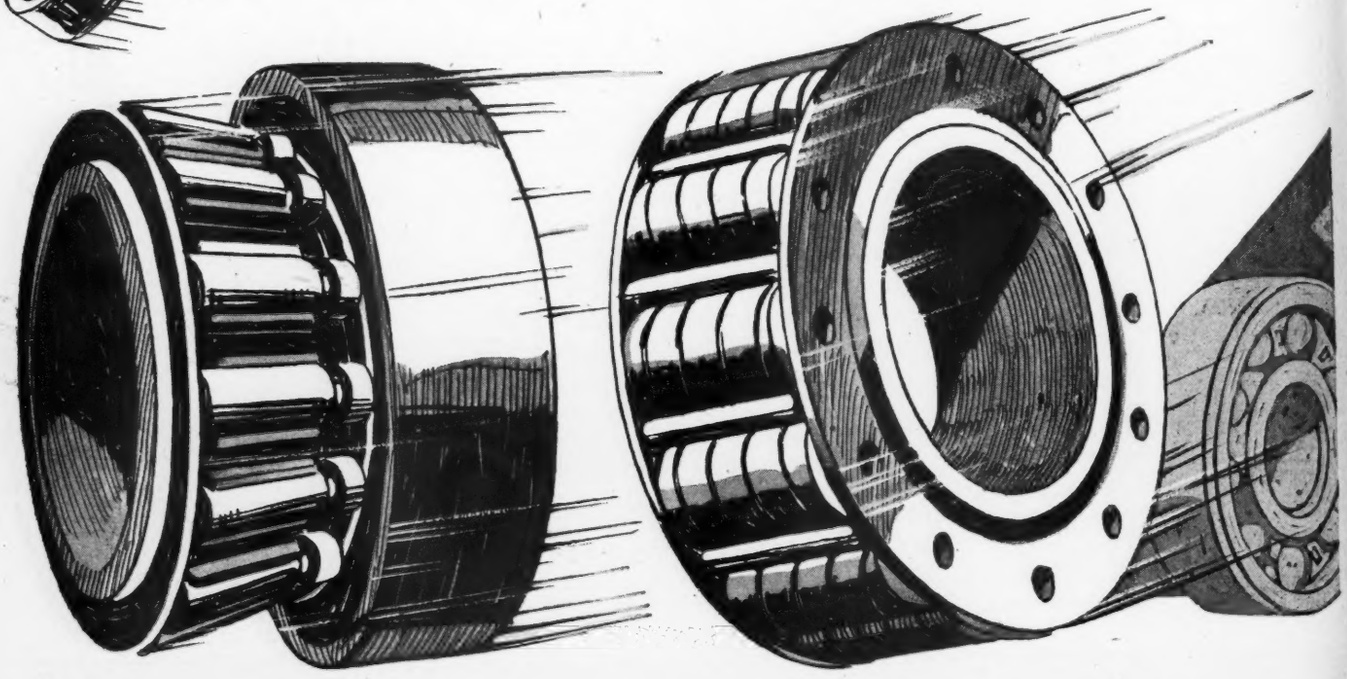
It will benefit you to know
That 33 direct Branches
And approximately
1000 Authorized Distributors
Of the Bearings Service Company
Form a nationwide chain
Of service branches
At which you can secure
Genuine
Timken
Hyatt and
New Departure

Bearings for repairs and
Replacements
On all
Passenger cars
Trucks
And tractors
This useful service
Is authorized
By the
Manufacturers of
These three leading makes
Of anti-friction bearings.





TIMKEN HYATT NEW DEPARTURE

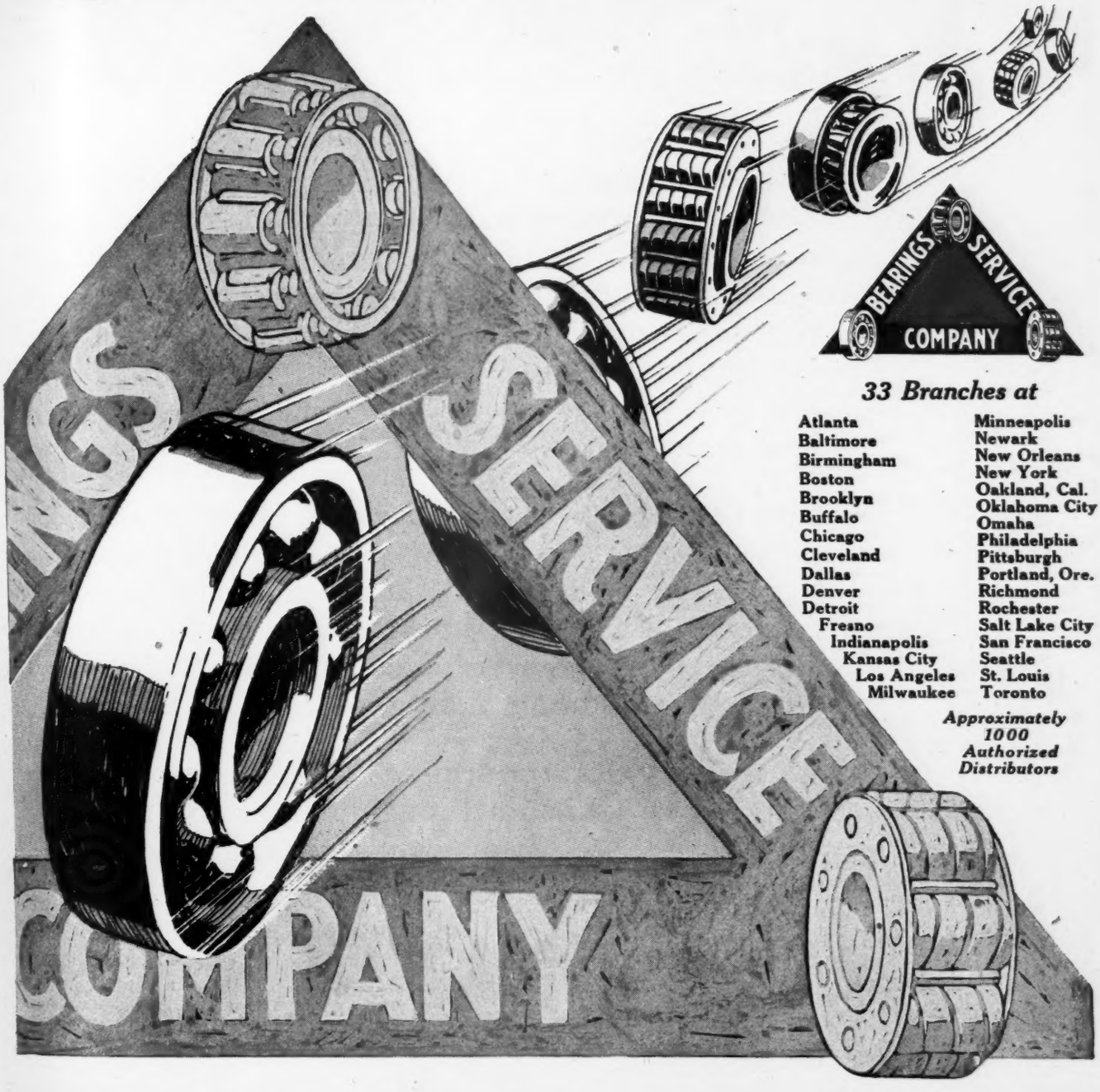


BEARINGS COM

General Offices:
Detroit, Michigan

QUICKLY

TIMKEN
HYATT
NEW
DEPARTURE



BEARINGS SERVICE COMPANY

33 Branches at

Atlanta	Minneapolis
Baltimore	Newark
Birmingham	New Orleans
Boston	New York
Brooklyn	Oakland, Cal.
Buffalo	Oklahoma City
Chicago	Omaha
Cleveland	Philadelphia
Dallas	Pittsburgh
Denver	Portland, Ore.
Detroit	Richmond
Fresno	Rochester
Indianapolis	Salt Lake City
Kansas City	San Francisco
Los Angeles	Seattle
Milwaukee	St. Louis
	Toronto

Approximately 1000 Authorized Distributors

SERVICE PANY

General Offices: Detroit, Michigan

Why Risk

Your Capital and Future With a Poorly Financed Manufacturer

When you select the Armleder Motor Truck you share in the financial stability and universal soundness of this organization. You can invest capital, expand energy, and employ your reputation with the positive certainty of safety, because the Armleder Company will remain in business and not leave you and your business stranded with an orphan truck.

The O. Armleder Company stands out as a colossal example of financial soundness, of business integrity, and holds out to you a business opportunity that guarantees your future profits. Through the most acute and drastic panics the country has ever known this company has stood firm.

With this great opportunity before you why buy from a poorly-financed manufacturer and share in the consternation, dismay and ruin which faces him?

THE O. ARMLEDER CO.

HOME OF ARMLEDER MOTOR TRUCKS

Covers One-Half of a City Block. Devoted Exclusively to the Manufacture of Armleder Motor Trucks.

ARMLEDER
Motor Trucks

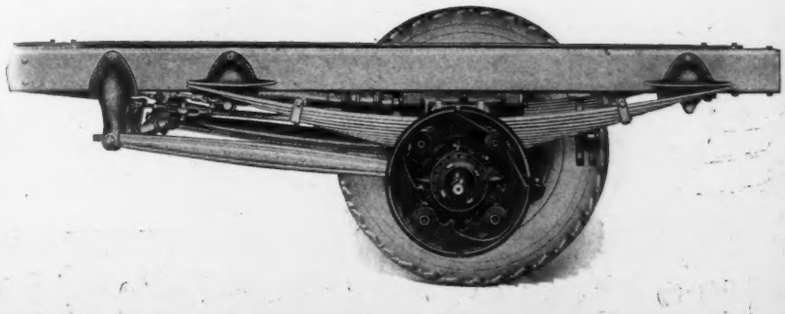
Don't gamble with a weak manufacturer. Drastic methods must be employed now to save him from ruin. Don't be dragged down with him. Don't build up a substantial reputation for a motor truck in your locality only to have it swept away and your business destroyed. You face a big decision when selecting your motor truck maker.

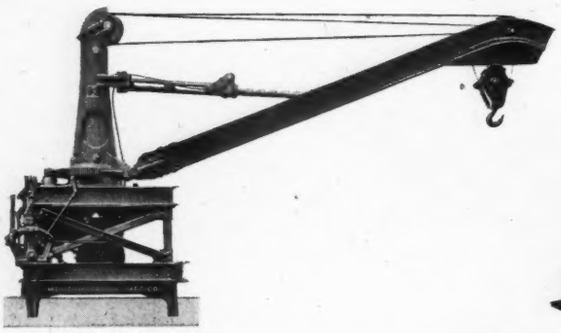
The Armleder Company have been in business for forty years, thereby establishing their super-financial strength and stability. They are forging ahead until they are now one of the large producers. Their policies to dealers are liberal, their reputation splendid, their trucks satisfactory, having in their design numerous patented features which other makers do not and can not have. Investigate our financial standing and business integrity through your bank or any Cincinnati bank, or any commercial agency.

Cincinnati, Ohio, U. S. A.

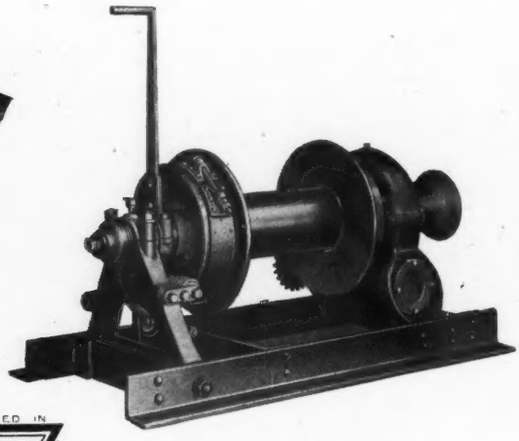
ARMLEDER PATENTED SPRINGS

Without Shackles or Shackle Bolts
Ride Like Touring Cars





Mead-Morrison Single-Line
Motor Truck Crane



Mead-Morrison Horizontal
Friction Drum Winch

MEAD-MORRISON
Truck Cranes and Winches

Increase the Productiveness of the Trucks You Sell

HOW many hours a day does a motor truck spend loafing—while loading and unloading is done by manual labor?

The function of a truck is transportation. Every minute spent standing still is cutting down its earning power.

Sell your truck owners the Mead-Morrison idea and add to the scope of your business and to your products. Show them how a crane or winch equipment cuts loafing time to a minimum and eliminates expenses of manual labor.

The Mead-Morrison Single Line Motor Truck Crane is distinguished by its simplicity of design as compared with other cranes. It has a ten-foot boom radius. If desired, it can be equipped with a boom giving a fifteen-foot radius. It may also be equipped for grab bucket work or electrically for a magnet.

The chief value of the Single Line Motor Truck Crane lies in its adaptability. Because of its peculiar design and its low clearance, it may be used in any warehouse or backed into any garage. It can be attached to a trailer and operated by an independent gas engine, or it may be used on an electric truck and driven by the electric motor.

The other Mead-Morrison truck equipment includes the No. 916 Truck Crane and several makes and types of winches. See our nearest agent for complete information.

MEAD-MORRISON
MANUFACTURING COMPANY

122 Prescott Street East Boston, Mass.

Distributors:

American Truck Body Co., Inc., Martinsville, Va.
Auto Truck Equipment Co., Pittsburgh, Pa.
Edward R. Bacon Co., Los Angeles, Cal.
Edward R. Bacon Co., San Francisco, Cal.
Hummel Mfg. Co., St. Louis, Mo.
Interboro Hoist & Body Corp., Long Island City, N. Y.
Kunkel Service Co., Baltimore, Md.
A. Lange Mfg. Co., Milwaukee, Wis.
Mansfield Steel Corp., Detroit, Mich.
Motor Truck Equip. Co., Philadelphia, Pa.
National Steel Products Co., Kansas City, Mo.
William Ogden, Indianapolis, Ind.
The Truck Engineering Co., Cleveland, Ohio
Springfield Commercial Body Co., Cambridge, Mass.
Springfield Commercial Body Co., Springfield, Mass.
Virginia Truck Body Corp., Richmond, Va.
Wisconsin Motor Parts Co., Chicago, Ill.

Check off What You Need

Anchor Clip		Cl
Axle Housing	✓	
Baffle Plates		Cl
Ball Cups		Cl
Ball Joi[illegible]		Cl
Ba[illegible]etainer		
Ball Thrust Retainer		
Bea[illegible]g Cap		
Beari[illegible]		
Blades, Fan		
Body Brace		
Bonnet Frame Ledge		
Brake Bands	✓	
Brake Band Guides		
Brake Band Support		
Brake Disc		
Brake Drums	✓	
Brake Pedal Bracket		
Cable Support		
Caps, Hub	✓	
Clamps		Dus[illegible]
Clips		Engine S[illegible]
Clutch Coil Cups		Equalizing Ba[illegible]

Over 200

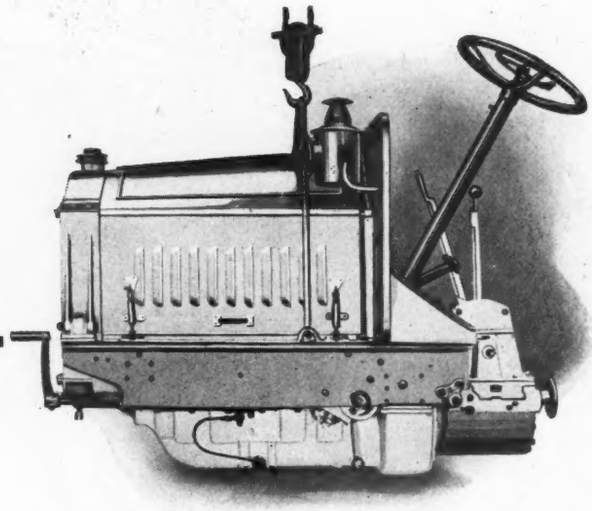
There are more than 200 Bossert Light Weight Stampings made to take the place of heavier, bulkier castings or drop forgings. These parts are cold pressed on the largest presses in the world, and made under the careful supervision of experts, by workmen who take pride in turning out the best.

BOSSERT
Pressed Steel Parts

have become a necessity to any truck maker who realizes that the final success of his truck depends on the tale that is told by the cost records of its users. Bossert Parts lower operating costs, reduce repair charges and enable truck owners to operate their trucks more economically and efficiently. Write us today about how you can substitute them for heavy castings.

The Bossert Corporation
Main Office and Works: Utica, N.Y.

Branch Offices
Cleveland, O., 812 Fidelity Mortgage Bldg.
Detroit, Mich. 1513 Ford Building
New York City 30 Church Street



This Demountable Unit Power Plant Prevents Costly Hold Ups

Maccar dealers have a tremendous sales asset in the Maccar Demountable Unit Power Plant. Truck operators instantly appreciate the utility and convenience of this unique type of construction. They realize that this remarkable power plant eliminates the usual amount of time lost on repairs. The removal of six nuts makes it possible to detach and easily remove the entire power plant assembly and substitute another in a half hour.

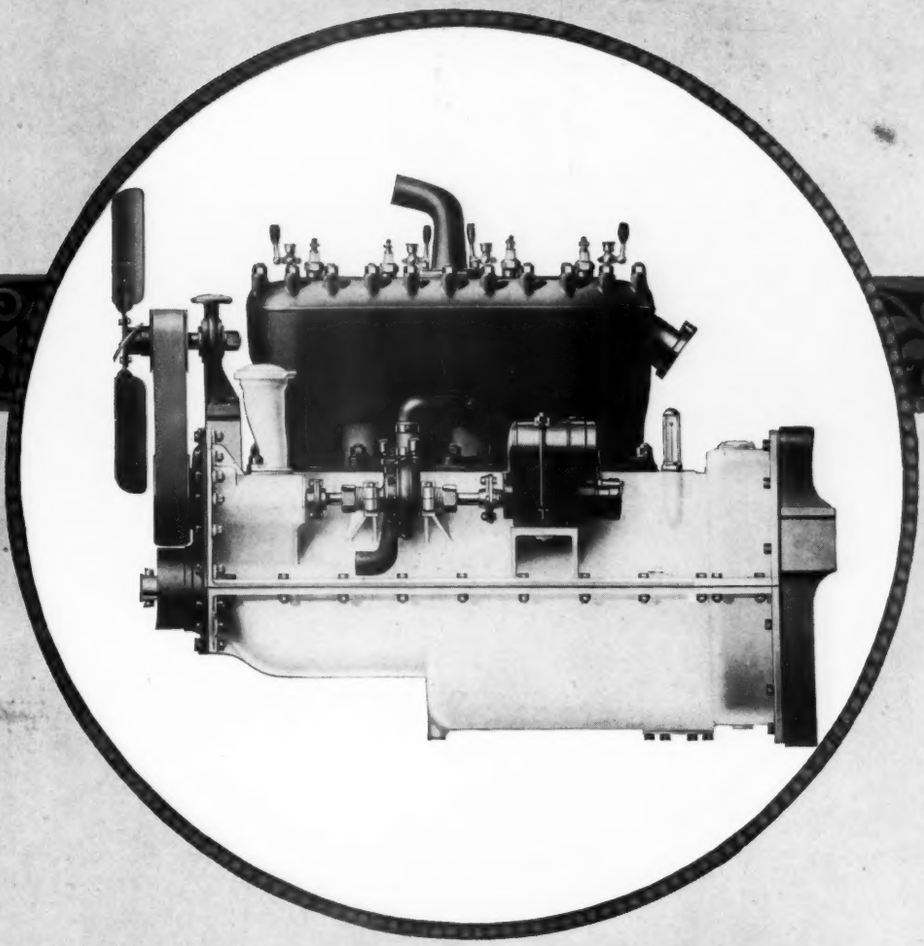
Assembled in one cradle is the motor, clutch, transmission, radiator, pump, magneto, carburetor, dash, spark and throttle controls.

Maccar dealers alone can supply this much-to-be-desired feature of construction. In these days of intense competition, the dealer to be conspicuously successful, must supply special features of this sort. And yet, despite its importance, the Demountable Power Unit is merely one of many exclusive constructional points that are distinctive of Maccar design.

Maccar Truck Company Scranton, Pa.

"the truck of continuous service"

Maccar



Meeting the Demands of the New Market

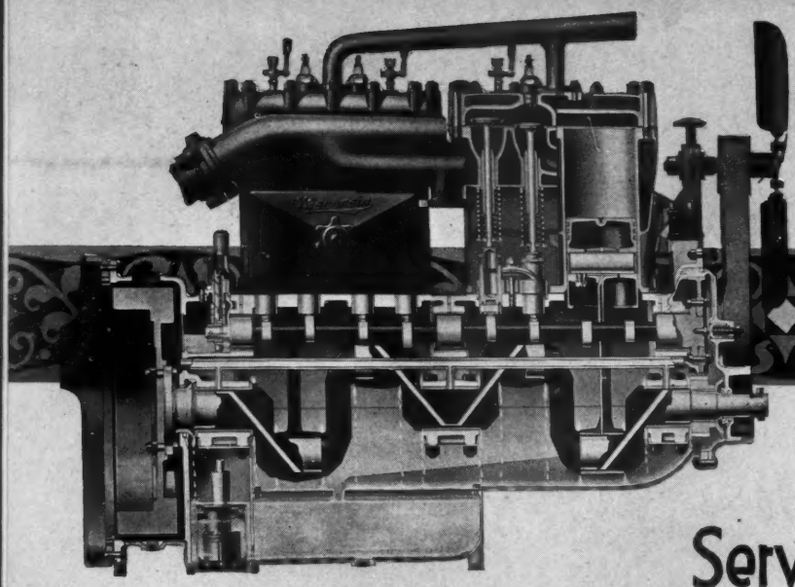
Wisconsin
CONSISTENT

The buyers' market now prevailing is vastly different from the one of several months ago. People are through "spending money" and demand sound reasons and arguments for investing. They want proof before closing—evidence before they express their confidence in dollars.

Wisconsin Motors can satisfy every demand the prospective truck purchaser may make. Stamina, service, economy, and freedom from trouble are characteristic points of Wisconsin superiority that truck buyers instantly recognize.

Wisconsin Motors are daily establishing records of performance; their dependability and economy are vital in meeting present-day conditions.

Wisconsin Motors are a deciding factor.



Service Will Be the New Basis of Competition

Wisconsin
CONSISTENT

DISTRIBUTORS

T. M. FENNER
21 Park Row - New York City

CHANDLER-HUDSON CO.
Seattle, Washington

WISCONSIN MOTOR PARTS CO.
2354 Cottage Grove Avenue
Chicago, Illinois

EARL P. COOPER COMPANY
1310 South Los Angeles Street
Los Angeles, California

Those with an eye to the future realize that competition is going to be carried on along different lines as a consequence of the change in the buyer's attitude.

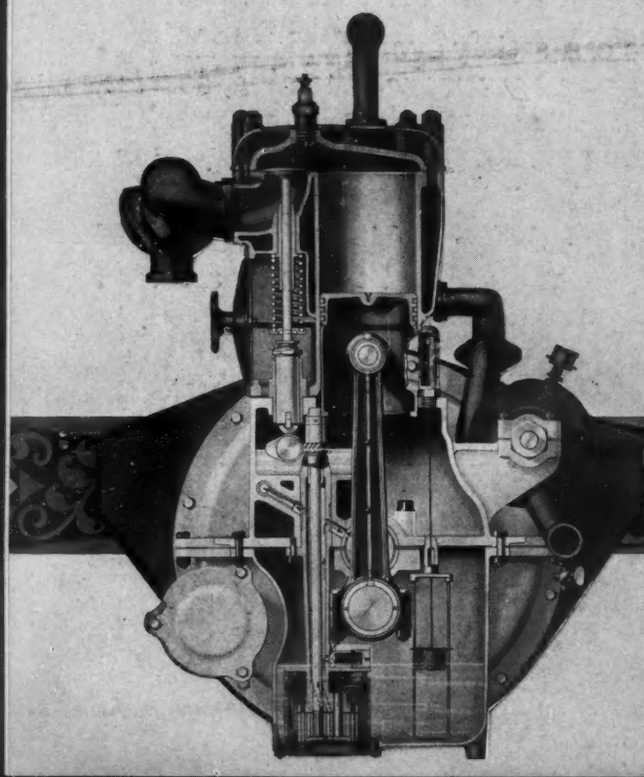
Insistent upon service, and rightly so, the truck buyer will be guided by the ability of the manufacturer to deliver that service.

Dealers who succeed will be equally insistent upon a full measure of service. Therefore the manufacturer wisely protecting his dealer and guarding the reputation of his truck, must meet such service demands.

The benefits of a service, completely developed with full knowledge of the truck user's requirements, are enjoyed by all Wisconsin users.

The implicit confidence placed in this service department is entirely justified, because a system has been perfected which insures Wisconsin Motor users with necessary replacements. Any Wisconsin user is within only a few hours of his replacement part.

Wisconsin service is a reality.



WISCONSIN MOTOR MFG. CO.
MILWAUKEE - WISCONSIN

Two plants with a combined floor space of over 100,000 square feet for the manufacture of

FRAMES

In our Sharon and Ellwood City plants we have ample facilities for handling your quality frame requirements. Complete heat-treating and other equipment, a well united organization, quality materials, insure you absolutely satisfactory results. ***Send us your specifications.***

SHARON PRESSED STEEL CO., Sharon, Pa.

Josiah Kirby, President

Board of Directors

E. E. Slick, formerly Vice-President of the Midvale Steel Co.
L. L. Knox, Vice-President of the Blaw-Knox Company
C. K. Strausburg, formerly General Manager of the Standard Tank Car Company
William McIntyre, President of the McIntyre Contracting Company
A. R. McGill, Vice-President of the First National Bank of Sharon
A. M. Moreland, formerly Treasurer of the Carnegie Steel Co.
Park Bachman, formerly with the Sharon Steel Hoop Co.
J. G. Bassett, Attorney-at-Law, Pittsburgh
George W. Short, formerly Vice-President of the Sharon Steel Hoop Company.
Frank J. Lanahan, Manufacturer, Pittsburgh
Josiah Kirby, President of the Cleveland Discount Company, Kirby Building
W. H. Watkins, Superintendent of the Upson Nut Company, Cleveland, Ohio
W. L. Ulmer, Vice-President of the Ulmer Mortgage Company, Ulmer Building, Cleveland, Ohio
W. J. Parker, of the W. J. Parker Company, Kirby Building, Cleveland, Ohio

As the Motor—So the Truck

THE motor is either the strong or weak link in the chain of factors that influence motor truck efficiency. Fully eighty per cent of the cost of mechanical maintenance of a motor truck is chargeable against its engine.

The many exclusive features of both design and construction in the Mack motor are responsible for much of the high earning power and low operating costs of Mack trucks.

In these days of careful buying, the acknowledged prestige of the Mack truck is constantly growing in the great motor truck market. Its many engineering advantages and its long record of achievement are proving stronger selling points today than ever before.

A recent valuable contribution to our sales service is our latest publication, the Blue Book. It is of vital interest to every motor truck dealer. Write today for a copy and for information concerning present available territory. Address: Room 21, International Motor Co., New York City.

INTERNATIONAL MOTOR COMPANY, NEW YORK

Mack TRUCKS REG. U. S. PAT. OFF.

CAPACITIES
1½ TO 7½ TONS
TRACTORS TO 15 TONS

"PERFORMANCE COUNTS"

Raise the Average Life of Your Product with

SPRING PERCH
TRUCK SPRINGS

The durability of the units of your assembly are vitally dependent on the efficiency of the springs.

A notable increase in the average life of your product will result when you equip your trucks with Spring Perch Quality Springs.

Made From Rigidly Tested Alloy Steels

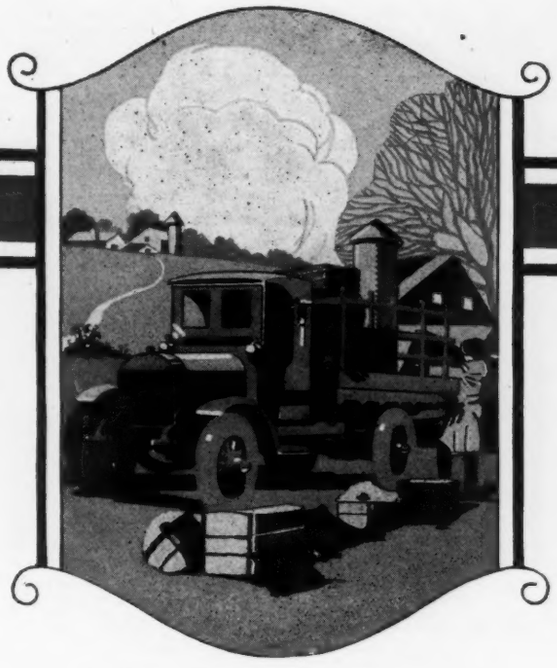
In our new, large, thoroughly modern factory, the ample up-to-date equipment includes: Specially constructed rotary furnaces under thermostatic pyrometer control. This insures a reliable and uniform hardening and tempering process reflected in the strength, resiliency and enduring qualities of the finished springs.

Put your spring problems up to the concern that has been making springs since 1843.

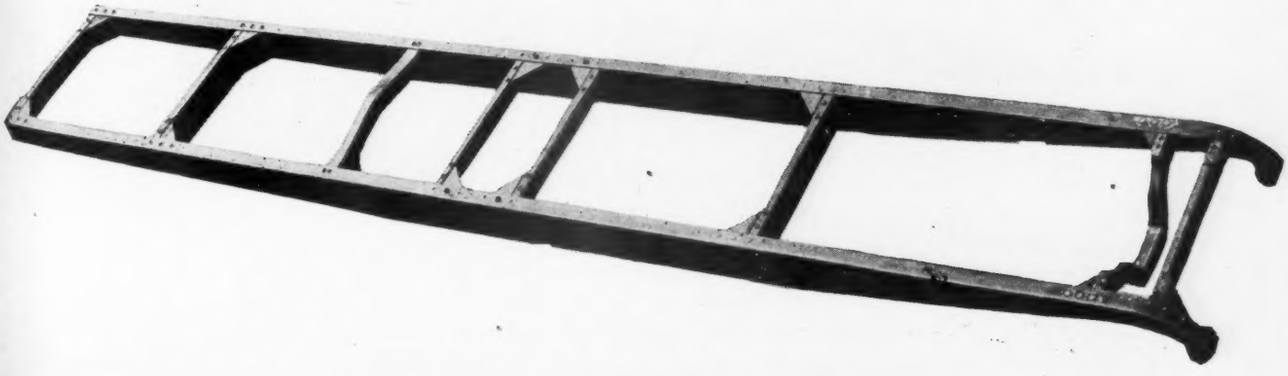
SPRING PERCH COMPANY

Makers of Springs Since 1843

Stratford, Connecticut



Axle Housings
Brake Drums
Step Hangers
Torque Arms
Running-Boards
Engine Pans
Axle Housing Covers



BINGHAM

Cleveland
Fifth City

P&B

Cleveland, Ohio, U. S. A.

GRAHAM BROTHERS
1½ TON SPEED TRUCK

There is a real, and very profitable opportunity, for many dealers in the need of business generally for Graham Brothers 1½ ton Speed Truck.

Supplying this need means steady sales without any additional service equipment beyond that which every good dealer already has.

Graham Brothers Speed Truck requires as little mechanical service as the average soundly built passenger car.

It is built from the ground up to run on pneumatic tires. Its materials are so fine and so co-ordinated, that it is 500 to 1000 pounds lighter than any other truck of equal capacity.

It does its work in one-third less time, at one-third less expense for every phase of operation.

It is literally a new element in the business of transportation.

It is built in only one model chassis, with any body style specified, and its capacity is the capacity suited to and used for 70 per cent of all truck loads.

Its equipment is unsurpassed. It includes Disteel Wheels, electric lights, odometer, moto-meter, and engine driven tire pump, in addition to the usual specifications of the high grade truck.

Graham Brothers have a truck and a proposition that from every angle is particularly good for the dealer. They welcome an opportunity to supply you full details Write.

GRAHAM BROTHERS

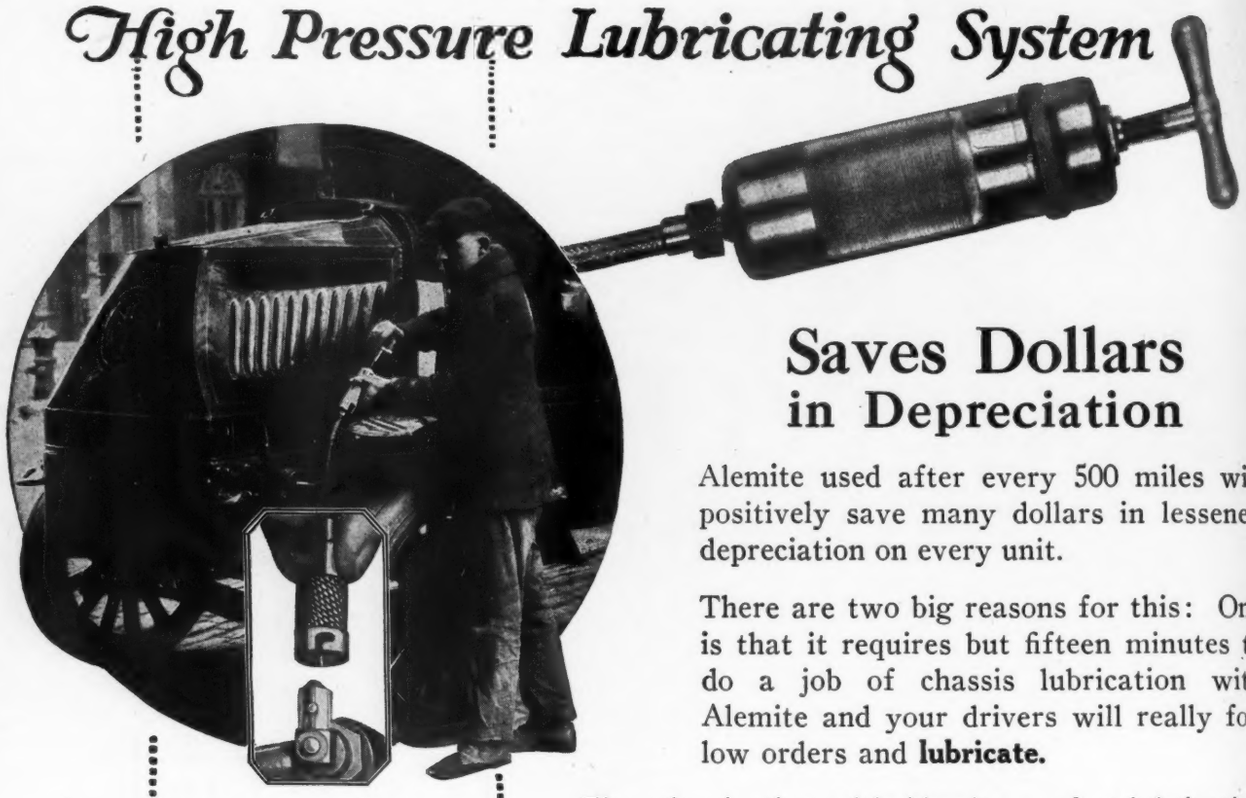
Plant and Offices: Evansville, Ind., U. S. A.

Factory Branches:
617-625 West 57th St., New York City and 1631-1633 S. Michigan Blvd., Chicago

GRAHAM BROTHERS
EVANSVILLE, INDIANA, U.S.A.

ALEMITE

High Pressure Lubricating System



Saves Dollars in Depreciation

Alemite used after every 500 miles will positively save many dollars in lessened depreciation on every unit.

There are two big reasons for this: One is that it requires but fifteen minutes to do a job of chassis lubrication with Alemite and your drivers will really follow orders and **lubricate.**

The other is, that with Alemite, perfect lubrication is absolutely certain because the old grit-laden grease is forced out of the bearings as the new, clean grease is forced in.

Compare the time required for chassis lubrication the old way with the short time required with Alemite. This saving alone is worth many times the initial cost of an Alemite installation.

Alemite is the most efficient method of chassis lubrication ever developed.

Over 150 makes of cars, trucks and tractors are standard equipped with Alemite High Pressure Lubricating Systems. The next truck you buy should be so equipped. If your present truck is not, get in touch with the Alemite distributor nearest you. There is an Alemite Station in every large center.

Use Alemite this way:—

Just slip the handy bayonet-slot coupling on the ball-check fitting, give an eighth turn, where it locks. Give the handle of the Compressor a turn or two and a pressure of 500 pounds is exerted, absolutely forcing old grease out and new in.

Inaccessible parts are easily reached and almost instantaneously cleaned and lubricated.

The following distributing Stations are in charge of Service and Retail Sales in their respective territories. Address Alemite Lubricator Co., at the address given.

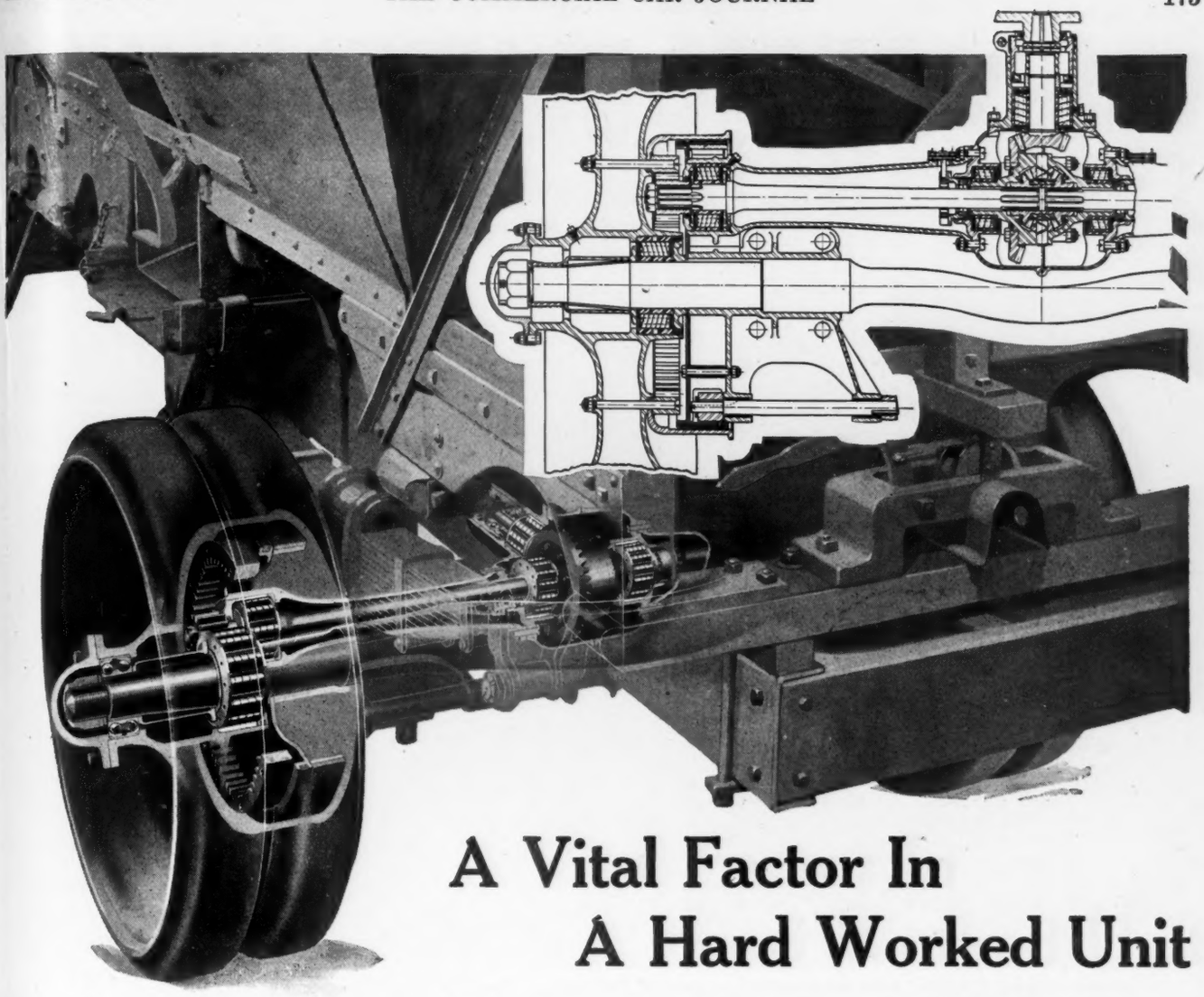
Baltimore, Md..106 W. Mt. Royal Avenue
Boston, Mass.....35 Cambria Street
Bridgeport, Conn....577 Fairfield Avenue
Buffalo, New York.....906 Main Street
Butte, Montana....55 W. Granite Street
Calgary, Alberta, Can...216 12th Ave., W.
Alemite Lubricator Co. of Canada, N.W.
Charleston, S. Carolina...197 King Street
Chicago, Ill....2611 S. Michigan Avenue
Cleveland, Ohio.....4612 Euclid Avenue
Dallas, Texas.....408 S. Ervay Street
Denver, Colorado.....1245 Broadway
Detroit, Mich....4750 Woodward Avenue
Des Moines, Iowa..1727 W. Grand Avenue
Fargo, N. Dak..324 Northern Pacific Ave.
Indianapolis, Ind...1005½ N. Meridian St.
Jacksonville, Florida....904 Main Street
Kansas City, Mo.....1506 McGee Street
Los Angeles, Calif...1138 S. Figueroa St.
Louisville, Kentucky..543 S. Third Street
Milwaukee, Wisconsin....465 Broadway
Minneapolis, Minn...208 S. Tenth Street
Montreal, Canada...321 St. James Street
John Millen & Son, Ltd.
Newark, New Jersey..217½ Halsey Street
New Orleans, La...637 St. Charles Street
New York...1780 Broadway *See below
Omaha, Neb.....2864-66 Farnam Street
Philadelphia, Penn...824 N. Broad Street
Portland, Oregon..Tenth and Oak Streets
St. Louis Mo.....2822-24 Locust Street
St. Paul, Minn...231-35 W. Ninth Street
Salt Lake City, U., 32-34 S. W. Temple St.
San Francisco, Cal..624 Van Ness Avenue
Seattle, Washington...312 E. Pike Street
Toronto, Canada ..53-57 Adelaide Street
John Millen & Son, Ltd.

*The Bassick Service Corporation
1780 Broadway

Distributors Alemite High Pressure Lubricating System, Bassick Graphite Penetrating Oil, Bassick Lubricant and Gas-colator.

THE

BASSICK MANUFACTURING CO.
361 W. SUPERIOR ST. CHICAGO, ILLINOIS



A Vital Factor In A Hard Worked Unit

This massive five ton internal gear axle is made up of two main parts to perform two main functions. It carries the major share of the total truck weight on a solid bar, and transmits the turning power to the wheels through a separate driving axle.

The bearing installation is consistent with the axle construction. Hyatt Roller Bearings carry the radial load back of the bevel pinion, support the differential on both sides, resist the tremendous tooth load adjacent to the internal gears and carry the greater part of the pounding load on the wheel spindle. Dual purpose ball bearings carry a share of the radial load and absorb all end thrust in both directions at the upper end of the bevel pinion shaft and the outer end of the wheel spindles. It is unnecessary and impossible to adjust any of these bearings, yet full provision is made for the ready adjustment of the bevel gears.

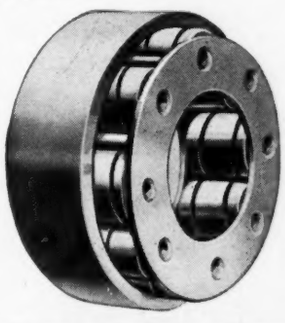
Here may be seen how Hyatt Roller Bearings contribute consistently to the simplicity and ruggedness of this axle design. Their performance in internal gear axles is being demonstrated daily, as completely satisfactory, in all types of service.

In Operation

Hyatt Roller Bearings possess those features which assure proper bearing performance under every condition.

Enduring and non-adjustable they never require attention. Through their self oiling feature the entire bearing surface is adequately lubricated at all times. Their ruggedness and simplicity of construction make them absolutely dependable.

Hyatt Roller Bearings will help to keep your truck always delivering the goods.



HYATT ROLLER BEARING COMPANY

Motor Bearings Division **Detroit, Michigan**

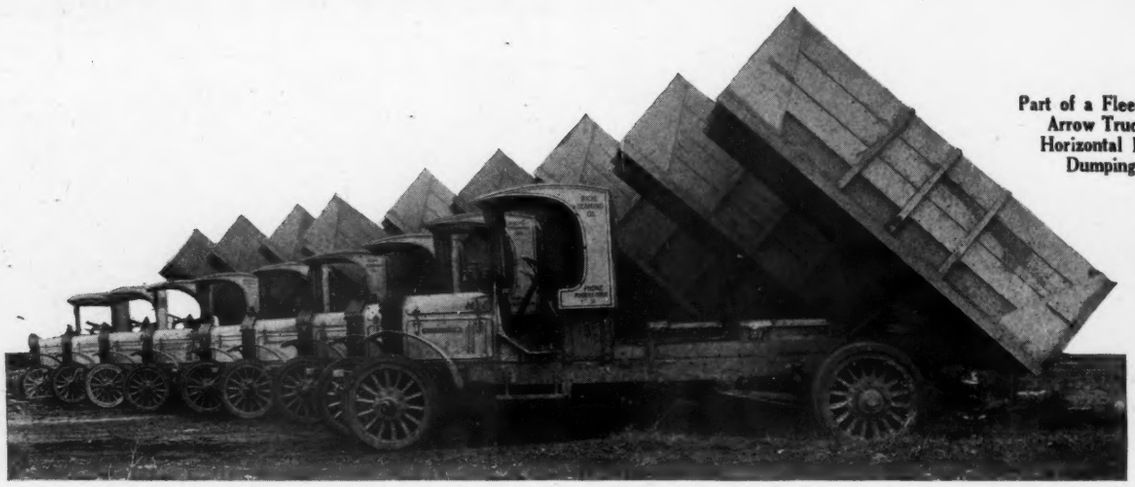
Tractor Bearings Division **Chicago, Ill.**

Industrial Bearings Division **New York, N. Y.**

HYATT QUIET BEARINGS

HORIZONTAL HYDRAULIC DUMPING UNITS

"Rise to Every Occasion"



Part of a Fleet of Pierce-Arrow Trucks With Horizontal Hydraulic Dumping Units

Three Models of Hoists and Four Standard Models of Steel Bodies (in various capacities) offer Horizontal Dumping Units to solve any dumping problem and suitable for every model and capacity of motor truck.

Special Bodies for Unusual Problems

The Truck User Knows:

Full length Bodies
No part of Hoist lower than underside of Chassis Frame
No concentrated stresses or strains in Chassis Frame
Proper load distribution

Are practical advantages

¶ A Dump Truck is no better than its Hoist!
The successful performance of *every* Dump Truck *depends* upon its Dumping Equipment.
¶ Horizontal Hydraulic Hoists stay on the job to keep the truck going and are backed up by a chain of Sales and Service Stations throughout the U. S.

Write at Once for Bulletin No. 20

HORIZONTAL HYDRAULIC HOIST CO.

FACTORY:

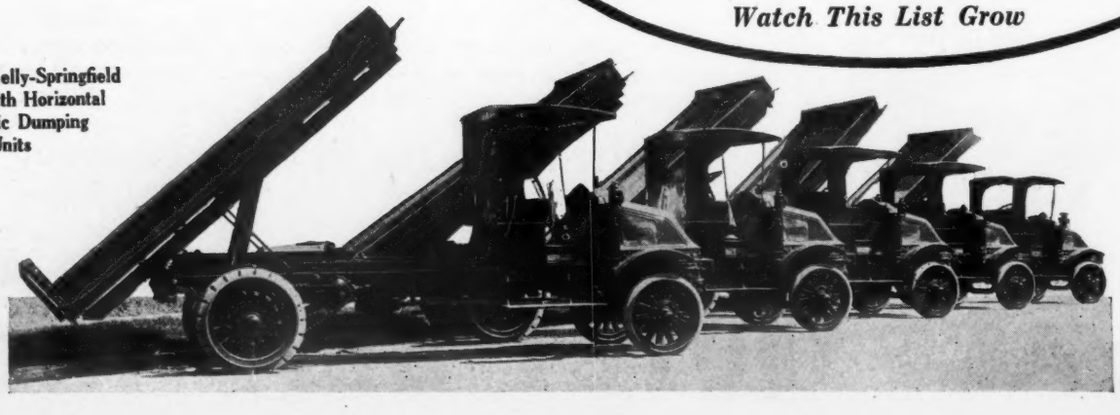
35 Twenty-Fifth St. Milwaukee, Wis.

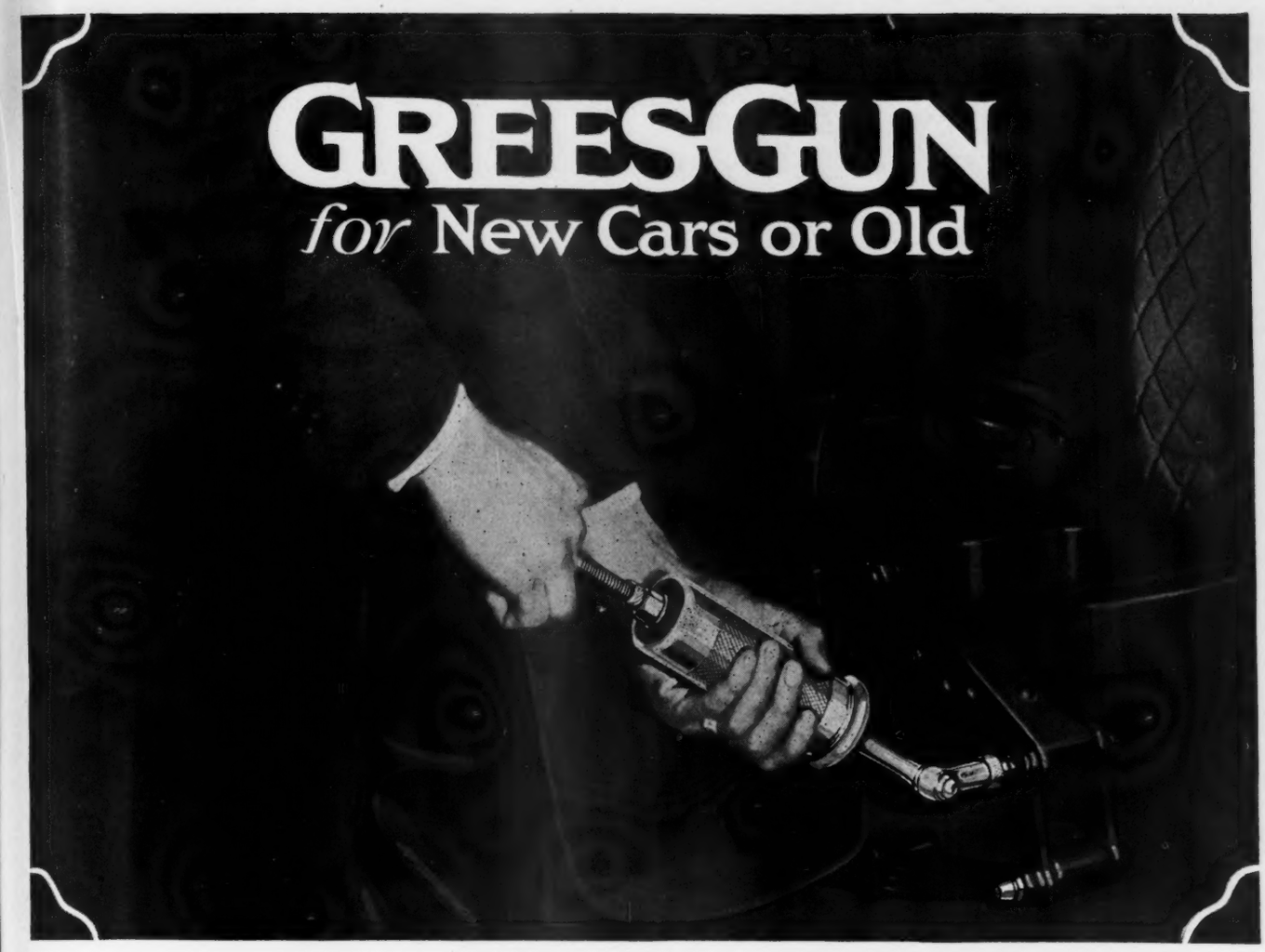
Sales and Service Stations

Milwaukee, Wis., 2815 Dunbar Place; Chicago, Ill., 3751 Wentworth Ave.; Minneapolis, Minn., University at 6th, S. E.; New York, N. Y., 719 E. 135th St.; St. Louis, Mo., 1110 N. Ninth St.; San Francisco, Cal., 51 Minna St.; Philadelphia, Pa., 3428 N. 18th St.; Detroit, Mich., 2035 Gratiot Ave.; Denver, Colo., 1751 Wazee St.; Los Angeles, Cal., 165 East Jefferson St.; Cleveland, Ohio, E. 36th St. and Cedar Ave.; Pittsburgh, Pa., 2723 Liberty Ave.; Seattle, Wash., 1106 Pine St.; Boston, Mass., 1335 Hyde Park Ave., Hyde Park; Salt Lake City, Utah, 141 Pierpont Ave.

Watch This List Grow

A Fleet of Kelly-Springfield Trucks With Horizontal Hydraulic Dumping Units





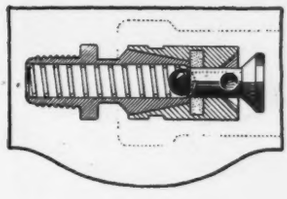
Clean—Quick—Positive—Convenient

GREESGUN is clean—clean to use and to fill. The piston never comes out of the cylinder; in filling, it is similar to an oil gun. And check valves in both gun and nipples prevent leakage in use and in carrying it in the car.

The high pressure attainable—500 to 1000 pounds—not only forces the grease to the bearing easily and certainly, but also pushes the old, dried lubricant out and replaces it with fresh.

There is no mussiness, no dirt, no labor; just slip GREESGUN over the nipple and give the grip a few turns.

GREESGUN is more efficient—is cleaner—is quicker—is more convenient.



The ball-check in the nipple holds the grease under pressure. The check valve in the gun itself makes leakage impossible. No grease can pass this check except when it is held open by the nipple.

This means more than eliminating the loss of grease; it makes GREESGUN clean to use and clean to carry. It's one of the big features that make the car owner want GREESGUN on his car.

1921 Convenience for Any Car

Not only the buyers of new cars can have this better system of chassis lubrication; dealers everywhere can equip any car with it in a few minutes time and at small cost.

Booklet "Positive Lubrication" gives valuable information on care of the car and is interesting to dealer and car owner alike. Sent on request.

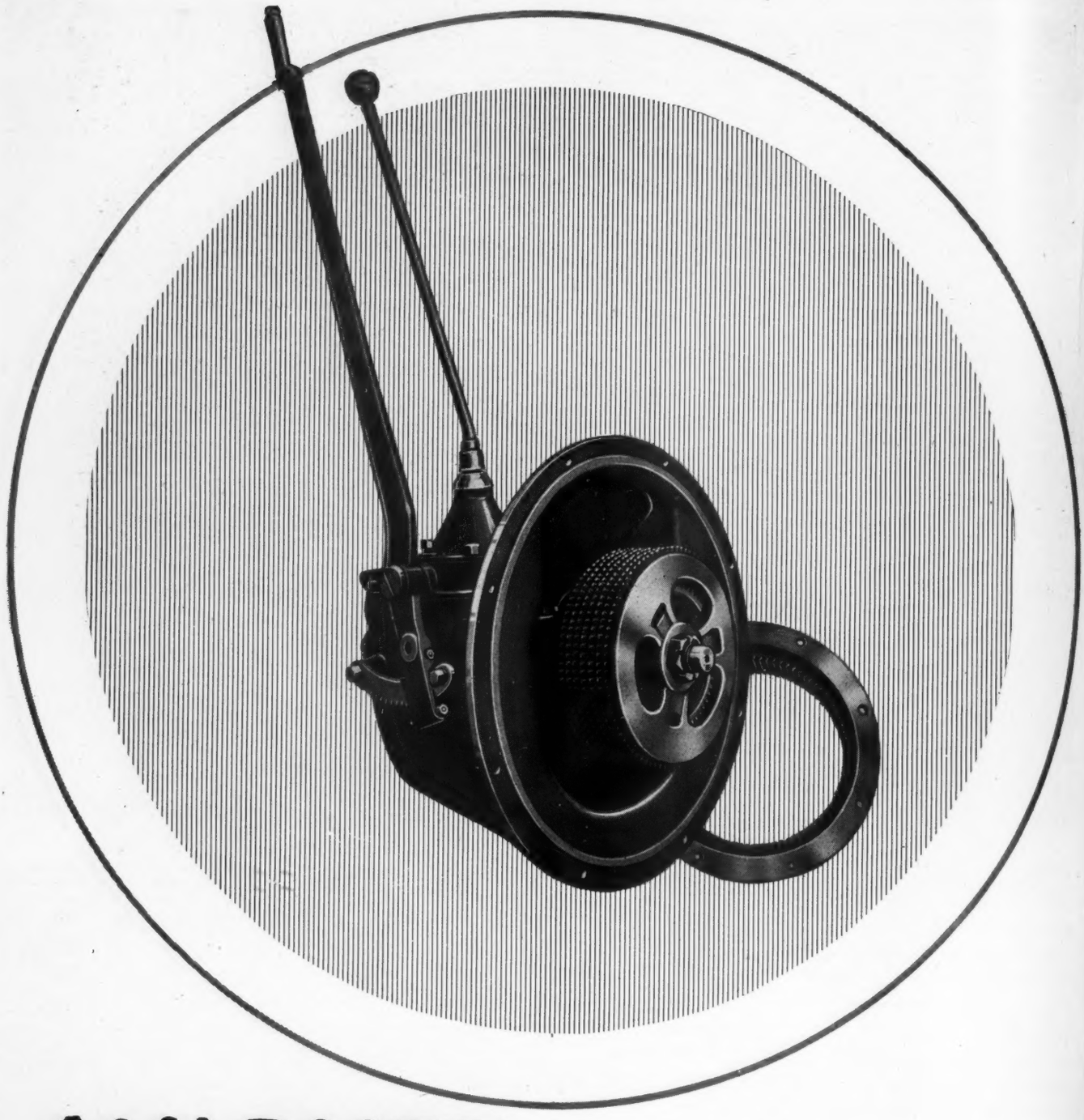
Made and guaranteed by

GREESGUN is supplied to car and truck makers by the manufacturer; to dealers by jobbers everywhere

The Ireland & Matthews Mfg. Company

Beard and Chatfield Streets **Detroit, Michigan**

(16)



WARNER GEAR

THE transmission gear reduction, sufficiently low to offset the faster axles used in speeding up the lighter trucks, is available in this Warner Gear T38C Transmission unit which in first speed has a gear ratio of nearly ***5*** to ***1***

WARNER GEAR COMPANY. MUNCIE, IND.

CLUTCHES TRANSMISSIONS CONTROLS DIFFERENTIALS

Prest-O-Lite Gas-

"THE TRUCK LIGHT THAT LASTS"

At more than twenty-two thousand garages, in town and country, empty Prest-O-Lite Gas Tanks may be exchanged for full ones.

THERE are no parts to wear, break or work loose in the Prest-O-Lite Gas Lighting System. The roughest going cannot affect the intensity nor range of the Prest-O-Lite Gas flame—the sturdy little tank simply can't be bumped nor jarred out of commission.

The result is a steady, glareless light at *all times*—with no "petering out"—Prest-O-Lite projects its rays a good two hundred feet ahead until every foot of gas has been used up.

And then a few moments stop at any of the more than 22,000 garages and stores that stock Prest-O-Lite Gas and your truck is under way again supplied with a full tank in place of your empty one. No other service to truck owners is so broad in its scope—no other lighting agent is so easily obtainable.

Truck manufacturers are realizing in greater numbers daily that Prest-O-Lite Gas is the most satisfactory light for trucks and it is standard equipment on many high grade motor vehicles.

Prest-O-Lite Gas "THE TRUCK LIGHT THAT LASTS"

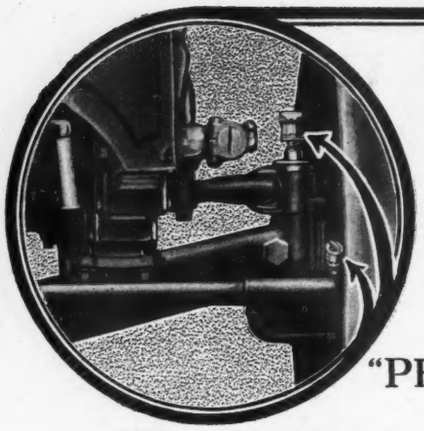
AND the ease with which the Prest-O-Lite Gas Lighting System may be installed on *any* type of truck makes it a simple matter for owners whose cars are equipped with old-fashioned lighting devices to replace them with Prest-O-Lite Gas. Any man who can handle a wrench can install Prest-O-Lite in a few minutes.

There is a Prest-O-Lite Gas Distributor near you—write for his name and address.

THE PREST-O-LITE COMPANY, Inc.
Small Tank Sales Department
General Offices: Carbide and Carbon Bldg., 30 E. 42nd St., New York
599 Eighth Street, San Francisco
In Canada: Prest-O-Lite Co. of Canada, Limited, Toronto

PT-505-21

all you need is a wrench



Standard Factory Equipment on

Mack TRUCKS

"PERFORMANCE COUNTS"

Empress Grease and Oil Cups

have been in use for years on the trucks of the International Motor Company. Shown here as used on the Mack Axle designed and manufactured in the International plants.

EMPRESS No. 287
RATCHET GREASE CUP WITH WING CAP

This cup is designed especially for motor car and motor truck use and is used extensively in that field. The cap locks securely at every half turn, even excessive vibration cannot loosen it. The cap is easily turned down by means of the wing handle. Strong and durable, it will stand much abuse. Made from steel only in four sizes: ¾ in., 1 in., 1¼ in. and 1½ in. diameter.

Write for Catalog—F

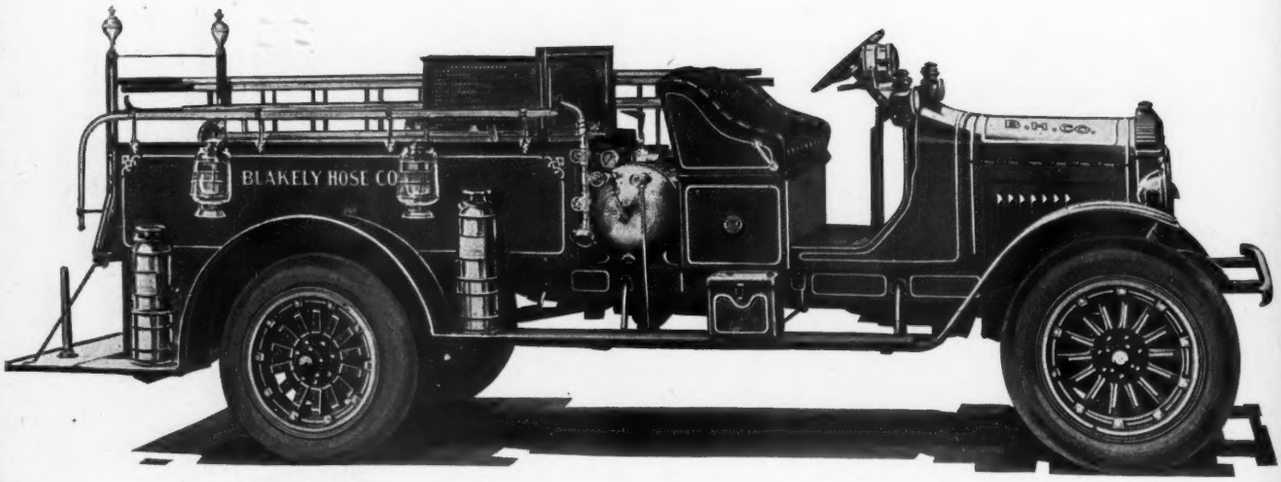
REG. U.S. PAT. OFF. Empress

Bowen Products Corporation

Manufacturing and Sales Divisions
Auburn Div., Auburn, N. Y. Winkley Div., Detroit, Mich.
Cleveland Div., Cleveland, Ohio
Minneapolis Div., Minneapolis, Minn.

Branch Sales Offices
New York, 220 Broadway. Chicago, 1607 Otis Bldg.
San Francisco, Monadnock Bldg.
Boston, 903 Dexter Bldg. Cincinnati, 409 Lyric Bldg.

TRUCK DEALERS! WHY NOT?



Sell Motor Fire Apparatus to Your Cities and Towns
Sell Them **Your Truck** Equipped With **Childs' Apparatus**
Profit for You and an Advertisement of Great Value

WRITE US FOR PARTICULARS AND CATALOGUE

O. J. CHILDS CO., Inc. **UTICA, N. Y.**

SPEED

ONE of the reasons car owners are so generous in their praise of the Zenith Carburetor is that it can be depended upon to give the full driving force of the motor—force for the quick burst of speed to get out of a tight place or fleet-winged power for the open highway.

Zenith Carburetor Co.

New York DETROIT *Chicago*
Lyons *London* *Turin*

Ward Electrics

Round Out Your Line

Many laundries, bakeries, dairies, department stores and scores of other city businesses refuse to install your gas-propelled cars.

Why? Because for their short-haul, frequent-stop delivery service the operating costs of your internal combustion vehicles are prohibitive.

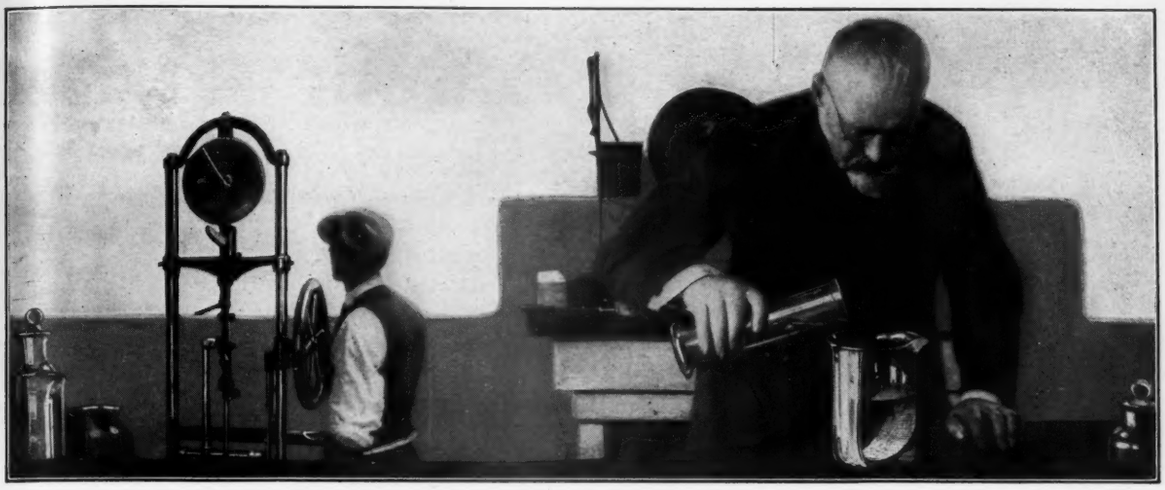
Round out your line with economical Ward Electrics—and gather in this highly profitable business.

Do you realize that all it costs for current (at 3c per k.w.hr.) to operate the 750 lb. capacity Ward Electric is 1c a mile? That the practical elimination of vibration insures fewer repair bills and much longer life to a Ward Electric than any gas-driven truck can boast? That it has a daily radius of 35 to 40 miles on a single charge? That when it stops—the flow of current automatically stops? You have a "live" selling, short-haulage proposition in today's buyer's market, when you round out your gas-propelled line with quality Ward Electrics.

Get the Proven Facts and Figures—NOW

6 Sizes – 750 lbs. to 10,000 lbs.

Ward Motor Vehicle Co.
MT. VERNON, N. Y.



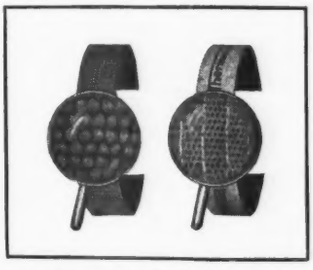
Laboratory experiments show wearing qualities of brake lining

What scientific laboratory tests reveal about brake lining

Why hydraulic compressed brake lining builds good will and increases profits

WHY does some brake lining bring the motorist back with complaints after only a few weeks of running? Why do the brakes slip and grab—give trouble soon after relining?

A startling new series of laboratory tests gives the answer—ordinary brake lining wears down rapidly and unevenly. It absorbs moisture, swells, dries up, swells again.



Ordinary woven lining

Notice the loosely woven texture.

Wears down quickly and unevenly.

Loses its gripping power as it wears.

Thermoid Brake Lining

Hydraulic Compressed.

Notice the compact texture.

Wears down slowly.

Gives uniform gripping surface until worn wafer thin.

Cold figures, accurate charts, tell the remarkable story of Thermoid Hydraulic Compressed Brake Lining. They give every dealer a new standard for brake lining.

By accurate weight test Thermoid contains 40% more material than ordinary woven brake lining.

Soaked in boiling water for one hour, ordinary lining absorbed 164% more water than Thermoid—in boiling oil, 290% more than Thermoid—in gasoline, 194% more than Thermoid.

Testing for wear

Scientific laboratory tests of wearing quality show graphically why Thermoid wears down so slowly and evenly.

Various makes of brake lining were fastened to a drum speeding 530 feet per minute, under a pressure of 53 pounds per square inch, for 32 hours.

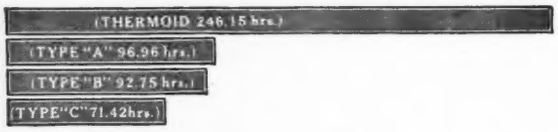


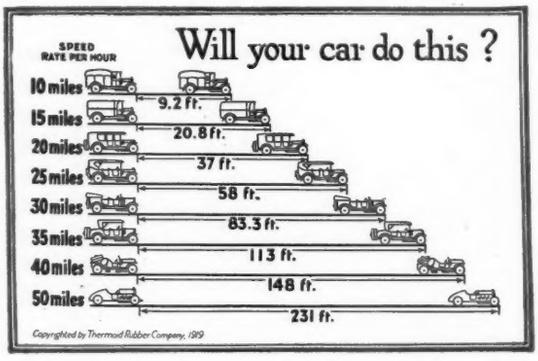
Chart showing results of scientific test of wearing quality of brake lining

Chart showing loss by thickness in scientific test of brake lining

Ordinary brake lining lost 45% of its thickness. Thermoid lost only 13%.

At this rate of wear ordinary brake lining would last but 71 hours. But even under this terrific punishment *Thermoid would endure for 246 hours.* The chart above, at the left, shows these results vividly.

Loss by excess of service compression, or by thickness, is illustrated by the right-hand chart above. Ordinary brake lining loses from 64% to 86%. Thermoid loses less than 1%.



Famous Thermoid Standard Chart of stopping distances, now approved by Police Officials and Automotive Engineers. Chart shows distance in which car should stop if brakes are efficient. Brakes lined with Thermoid meet these standards.

Use these facts to increase business

Practically every car owner now realizes the grave menace of faulty brakes. Each of these car owners wants to know that his brakes will hold in every emergency—whenever he must make a sudden stop to avoid a smashup—to save a life.

The great Thermoid advertising campaign for 1921 is reaching 10,000,000 readers with full pages in the Saturday Evening Post and 18 other national and motor magazines and farm papers.

In each advertisement is shown the famous Thermoid chart of correct stopping distances reproduced on this page.

Inspect your customers' brakes. Reline those which are badly worn, with Thermoid Hydraulic Compressed Brake Lining.

Standardize on Thermoid — the lining which gives each driver an added factor of safety and builds good will for you.

Send for the 1921 Thermoid Sales Plan, with reproductions of powerful dealer helps. Write today.

THERMOID RUBBER COMPANY

Factory and Main Offices:
Trenton, New Jersey

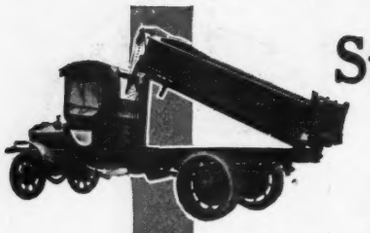
New York, Chicago, San Francisco, Atlanta, Cleveland, Detroit, Philadelphia, Pittsburgh, Boston, London, Paris, Turin.

Canadian Distributors: The Canadian Fairbanks-Morse Company, Limited, Montreal.

Thermoid Brake Lining

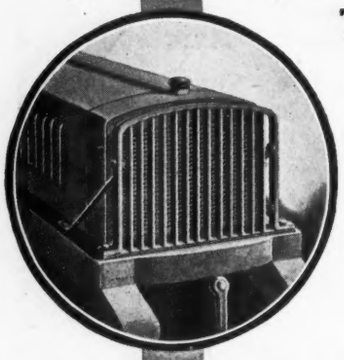
Hydraulic Compressed

Makers of "Thermoid-Hardy Universal Joints" and "Thermoid Crolide Compound Tires"



Steel Dump Bodies

Your Dump Body requirements handled by specialists. Standardized models—or made precisely to your specifications.



Truck Radiator Guards

You effect greater distribution when your truck is Stewart Radiator-Guard Equipped. Our Engineering Department will be glad to advise you whether flat bars, channel or angle sections be used.

We can also efficiently supply your steel cab and steel dash needs. Write.

The Stewart Iron Works, Inc.
Cincinnati Ohio

STEWART SPECIALTIES

Winther Trucks

A complete line of quality trucks nationally known and appreciated

Winther Motor Truck Co.

Manufacturers of
Motor Trucks and Motor Cars
Kenosha, Wis.

Use Pressure Proof Rings

In Worn Cylinders

They will not creep or reciprocate, therefore lap in perfectly to form a sure, permanent seal. With Pressure Proof Rings compression cannot leak. They insure increased power, cure carbon, smoking and over-oiling, and will materially cut gas and oil bills. *You* should recommend and install them.

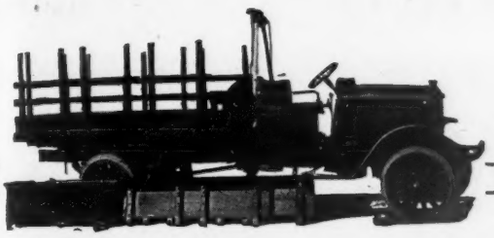
MANUFACTURED BY
PRESSURE PROOF PISTON RING CO.
107 MASSACHUSETTS AVE. BOSTON, MASS.
Canada: Pressure Proof Rings, Ltd.
Sun Life Bldg., Sherbrook, Quebec

SNEAD
CUSHION DRIVE SHAFTS

FOR TRUCK AND PASSENGER CAR MANUFACTURERS WHOSE STANDARDS DEMAND THAT EVERY DETAIL OF THEIR EQUIPMENT AS TO WORKMANSHIP, MATERIAL AND DESIGN SHALL BE THE

BEST OBTAINABLE

Snead & Company
Jersey City New Jersey
WE SOLICIT INQUIRIES



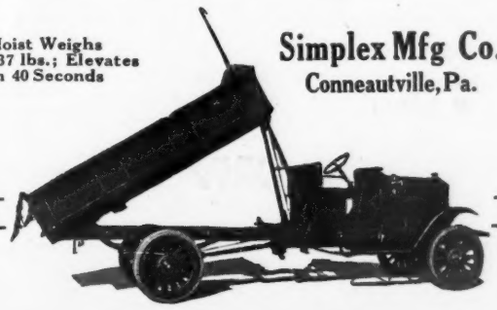
SIMPLEX Four Bodies in One

Think of the selling possibilities of a truck body which is four bodies in one.

Think back on the truck sales you would have saved could you have offered your prospect such a four-in-one proposition as the Simplex.

Now is your chance to cash in on every selling opportunity that rises wherein a Simplex—and only a Simplex—will help you swing the truck sale. Write for full particulars *at once*.

Hoist Weighs 237 lbs.; Elevates in 40 Seconds



Simplex Mfg Co.
Conneautville, Pa.

COVERT TRANSMISSIONS

The truck, tractor or motor car containing a Covert Transmission may cost slightly more, but it will be far more valuable to you.

COVERT GEAR CO., INC.

Sales, Engineering and Factory: **Lockport, N. Y.**
Export Offices: **100 Broad Street, New York City**

Accuratime INTEGRAL CAM SHAFTS

Built By

MUSKEGON MOTOR SPECIALTIES COMPANY
MUSKEGON, MICHIGAN.

By Reputation – "The Best Cam Shafts Made"

Converting Reo Speed Wagons Into Three-Ton Trucks

with Detroit Universal Truck Attachments, has been a source of additional profit to many Reo dealers.

Advantages of the converted Speed Wagon over the ordinary 3 ton truck include lower price, greater speed, lower consumption of gas and oil, quicker response to controls, and greater horsepower per hundred pounds than any other truck on the market.

Here is a money-making proposition for Reo dealers. Write for specifications of Detroit Universal Truck Attachments.

CARRIER MOTOR TRUCK CO.
1685 Gratiot Ave. Detroit, Mich.

HIGHLAND
Light Truck Bodies

One and three-quarter ton trucks, and speed wagons can now be equipped with express and stake and platform bodies made to Highland Body Company standards and produced in quantity by efficient Highland methods.

The express body is the usual flare-board type to which a grain-tight box or hog rack can be added. The canopy top is optional. The stake or platform body is especially designed for speed wagon work. Either body may be equipped with a special light, closed cab designed for speed wagon use.

These bodies are stocked at the Highland Detroit Branch and may be attached to chassis before they are shipped from Detroit.

Write for Descriptive Folder

The Highland Body Co.
Cincinnati, Ohio

Detroit Branch: **Greenwood and Holden Aves.**

HIGHLAND STANDARD CABS *and* BODIES

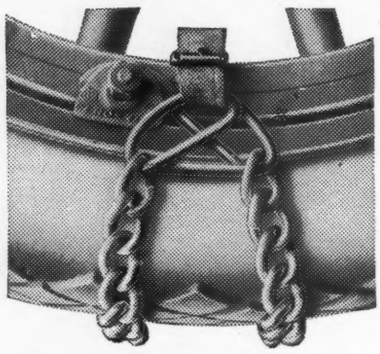
Velie

The Ton-and-a-Half That is *Moving*

Velie 1½-ton puts *live business* into the truck market wherever introduced. On pneumatic tires it is setting new records for speed and service. Rugged, durable Velie Truck construction throughout. Bodies for every kind of hauling.

DEALERS: This is the Truck Proposition to wake up your territory. If the Velie is not represented, write us at once.

Velie Motors Corporation
Motor Truck Division **119 Velie Place, Moline, Ill.**



MINUTE GRABS
for Emergency

Originally made only for touring car, to get you out of a mud hole quickly.

But now, in response to the insistent demand of the trade, we are making them for roadster, touring car, and pneumatic and solid-tired light and heavy trucks, to be used in place of floating chains.

You will like them—everybody does.

Get Our Dealer Proposition

DAUBENSPECK CHAIN CO.
BUTLER, PA.

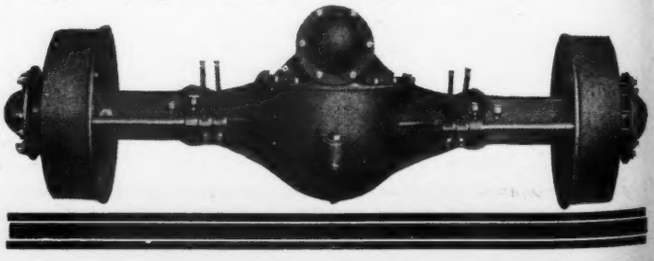
RAS
WORM DRIVE
AXLES

The quality truck maker will be deeply interested in the load-carrying strength and power-transmission capacity of these scientifically designed axles. They represent the most advanced thought in rear axle construction.

For Further Information Write

R. A. SCHULTZ MFG. CO.
1809 Belmont Ave. Chicago, Ill.

Capacity 7500 Pounds on Tires



NAPOLEON Trucks

1 and 1½ Ton Capacity

Some of the Reasons Why the NAPOLEON Sells "Big"—

Overhead Valve Motor

Sturdy Double Frame

Heavy Duty Axle

A Real Clutch and Transmission

"Safety-First" Brake

All-Seasons Cab

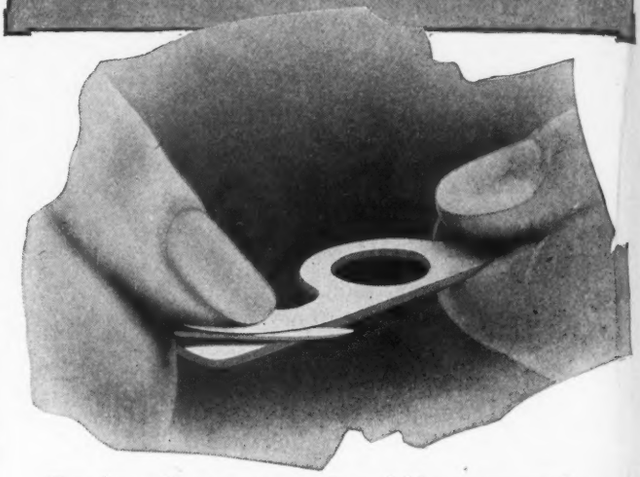
This is the Buyers' Market—the Napoleon Will Stand the Test

Today the buyer doesn't need to take a chance—he can know—he can and does demand exacting reasons—he buys on mechanical merit and on performance. Today, more than ever before, dealers realize that they must have a real truck to sell.

You can make some real money selling the Napoleon Truck in your territory because the Napoleon will stand critical inspection from the tip of its radiator to the tail light. If you are the right man to sell the Napoleon, write today for dealers' plan and complete literature. We are prepared to make prompt deliveries.

Napoleon Motors Company
Traverse City, Michigan

HERE'S HOW—



Bearing adjustments made quickly—accurately—cheaply—with Laminated Shims.

LAMINATED SHIM CO., Inc.
47 West 34th Street, New York

Detroit: Dime Bank Building St. Louis: Mazura Mfg. Co.
Chicago: 1118 S. Michigan Ave.

LAMINUM

GET OUR NEW CATALOG "V" SHOWING

BANTAM

USED ON THE BEST MOTOR TRUCKS

THE BANTAM BALL BEARING CO.
BANTAM, CONN.

SCHWARZ WHEELS

Proved Quality Equipment

The indisputable fact that **Schwarz** Wheels are standard equipment on all the leading commercial cars is eloquent testimony to their **proved** quality.

Schwarz Wheels owe their supremacy to the Schwarz Patented Interlocking Spoke Construction, which forms a rigid, immovable center assembly that absorbs vibration—but cannot loosen or get out of shape under the most severe strains.

You are **sure** of lasting, completely satisfactory service when you specify **Schwarz** Wheels.

By All Means Send for Full Particulars

NOTE THE WOOD WHEELS EVERYWHERE

The Schwarz Wheel Co.

FRANKFORD **PHILA., PENNA.**

GILLIAM TAPERED ROLLER BEARINGS

have longer endurance, greater strength and easier running qualities

"They Last Longer Because They Are Stronger"

THE GILLIAM MFG. CO.
CANTON, OHIO

Detroit Sales Offices: 4829 Woodward Ave.
W. L. Malotte, Manager

PERFECTION MOTOR CAR HEATERS

Truck cabs made comfortably warm in cold weather by Perfection Heaters will increase the sale of your trucks.

"The Heat is There—Why Not Use It?"

The Perfection Heater & Mfg. Co.

6552 Carnegie Ave., Cleveland, Ohio

PERFECTION MOTOR CAR HEATERS

TITAN

FIGURE IT OUT!

TITAN dealers averaged for 1920 to date 62½ repeat orders.

TITAN users to date average 2½ trucks apiece.

"This record guarantees you"—All satisfied users—Many fleet owners and the final test—Low Selling Cost.

2½ Tons 3½ Tons 5-6 Tons

TITAN TRUCK CO.
MILWAUKEE WISCONSIN

WIZARD
VALVELESS

Power-Driven Tire Pumps

Simplicity

Of Wizard design, eliminates all troublesome features of the valve type pumps with their multiplicity of parts and their necessary adjustments and repairs.

There are only three moving parts in the Wizard Pump and for its service-life no adjustments, renewals or repairs are necessary. A turn of the grease cup before starting is the only attention needed.

As equipment on your chassis it will end your tire inflation troubles, and day in and day out it will deliver maximum pressure even under the severest and most adverse conditions.

Immediate deliveries of all models. Literature sent upon request.

Sundstrom Manufacturing Co.

Successors to Rex Machine Co.

Shields Avenue at 32nd St. Chicago, Ill.

Detroit Office, Garfield Building

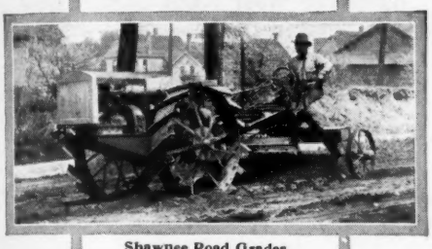
BUYERS' INDEX

This is NOT an index of what manufacturers make, but merely an index of the CONTENTS of both the reading and advertising pages of THIS PARTICULAR ISSUE, and is placed here for the benefit and convenience of our readers

LE ROI the Little Giant of a Motor

Adopted as Standard Equipment in Twenty Distinct Lines of Business

Ranger Tractor Cultivator



Shawnee Road Grader

Jeffery Radial Loader

E. B. Cultivator

¶ Very few users of power-operated machinery appreciate what thought the manufacturer has given to his choice of engine. Nor do they realize what service troubles they are saved in an engine like the Le Roi. Already it has been adopted by 90% of builders of power cultivators and light tractors.

¶ You cannot go wrong in your choice if the engine is a Le Roi. It is universally accepted as the standard for such machinery.

Distributors and dealers know its operation and performance. It is built on a production scale which automatically makes for protection.

¶ 54 manufacturers of 20 distinct types of power operated machines have standardized on the Le Roi Motor. Everywhere it is recognized as the leader. Our customers would not think of offering you a substitute engine. Take any one of these uses and you will find the *leading* manufacturer a Le Roi user:

Light tractor, motor cultivator, ensilage harvester, street flusher, power shovel, passenger car, centrifugal pump, light motor truck, portable saw rig, concrete mixer, industrial tractor, industrial locomotive, amusement equipment, conveyor, ice-harvesting machinery, electric generator, motor boats, portable wagon loader, railway motor car, ballast screening machinery, air compressors.

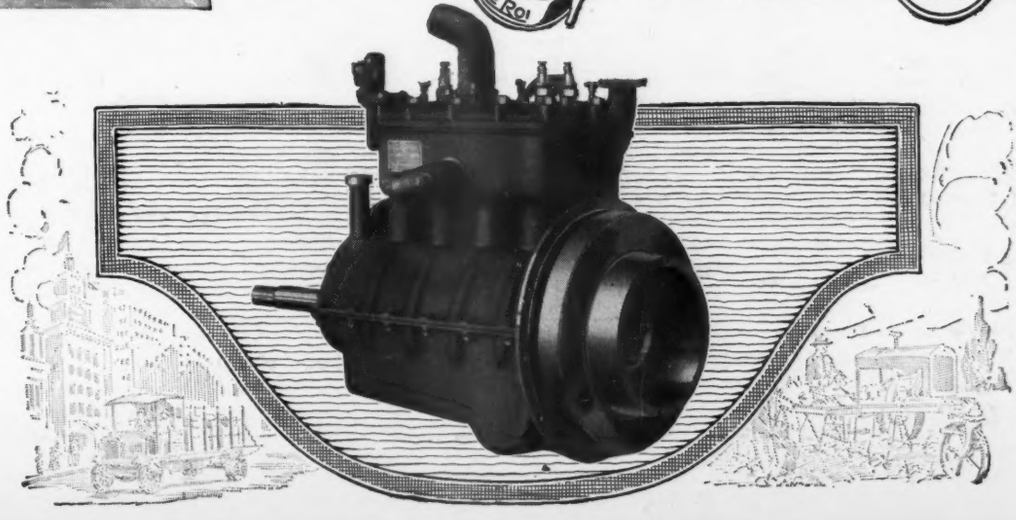
¶ In whatever machinery you buy, look first to the engine—the vital organism—and don't delay ordering. The months to come will see the greatest machinery and labor shortage that has ever faced American business.

You may have a copy of an illustrated folder which shows some of the numerous uses to which Le Roi Engines are put in labor-saving machinery; and a list of makers who are using the Le Roi as standard equipment.

LE ROI COMPANY

MITCHELL ST. AND 60TH. AVE.
MILWAUKEE, WIS.

CABLE LE ROI MILWAUKEE



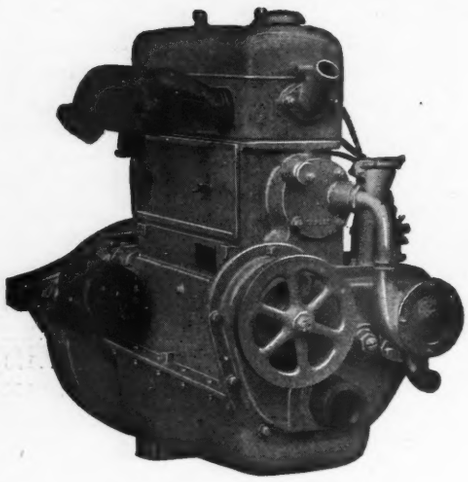
BUYERS' INDEX—Continued

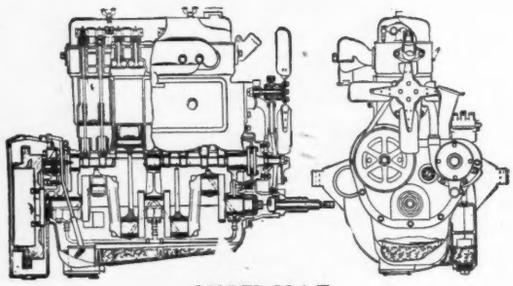
BUYERS' INDEX—Continued

Advertisers' Index

Advertisers' Index—Continued

Weidely Bulldog 4-Cylinder Valve-in-Head Motors





MODEL M A T
(Also Other Models)

Specifications

Bore, 4 in.—3¾
Stroke, 5½ in.
Piston Displacement, 276 cu. in.—243
Crankshaft Main Bearing (Rear), 2½ x 4 in.
Crankshaft Main Bearing (Front and Center), 2½ x 2½ in.
Connecting Rod, 2 x 2¼ in.
Wrist Pin Bearing, 1 in.
Diameter of Valves in Clear, 1 13/16 in.
Total Weight of Motor, 693 lbs.
Horse Power (S. A. E. Rating), 25.6.—22.5
Suspension, 3 point.
Bell Housing, No. 3 S. A. E.
Spread of Arms, 24½ in.
Electrical Equipment, Generator with Distributor or Magneto and Starting Motor.
Oil Pan, Cast Iron or Aluminum.
Bell Housing, Cast Iron or Aluminum.

Motors for
Trucks Tractors Passenger Cars

Write for Full Specifications

Weidely Motor Features

Overhead valves

Force feed lubrication

Positive water circulation

Materials used especially suitable for each part

Husky crankshaft

Ample bearings

More horse power per cubic inch

In other words—a Bulldog

Nearly 30,000 in service

Weidely Motors Company

Main Office and Factory **Indianapolis, Ind., U. S. A.**

New York: John M. Steinau, 2 Columbus Circle
San Francisco: F. Leroy Hill, 96 Ninth St.

THE COMMERCIAL CAR JOURNAL

Entered as second-class matter at the Post Office at Philadelphia, Pa., under the act of March 3, 1879

Vol. XXI PHILADELPHIA, APRIL 15, 1921 No. 2

Published the 15th of each month by the

CHILTON COMPANY

Market and 49th Streets Philadelphia, U.S.A.

JAMES ARTMAN, President C. A. MUSSELMAN, Treas. & Gen'l Mgr.
GEO. H. BUZBY, Vice President A. H. VAUX, Secretary

ADVERTISING DEPARTMENT

C. MONROE SMITH, Eastern Manager GEORGE H. DUCK, Western Manager
GEORGE D. ROBERTS, Advertising Director Chilton Publications
A. W. BROWNELL, Advertising Manager
L. E. McCONNELL, Jr., New York E. H. CROLL, New York
F. W. HENKEL, Chicago
J. C. WEED, Detroit E. W. CORMAN, Cleveland

EDITORIAL DEPARTMENT

JAMES ARTMAN, Editor in Chief ALBERT G. METZ, Managing Editor
MARTIN J. KOITZSCH, Associate Editor

EDITORIAL REPRESENTATIVES

C. P. SHATTUCK, Field Editor A. V. COMINGS, Western
CHESTER S. RICKER, Technical

TABLE OF CONTENTS

SUBSCRIPTION RATES

United States and Possessions	$2.00
Canada	3.00
Foreign	4.00
Single Copies	40c

Make Checks, Money Orders, etc., payable to Chilton Company

Change of Address—Subscribers desiring their address changed should give the old as well as the new

The Commercial Car Journal is a member of the Audit Bureau of Circulations, the Recognized Authority on Circulation Audits